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Schools NOT Required to Contribute to USF

FCC Ruling 97-420, handed down December 30, 1997, declares that "non-profit schools, colleges, universities, libraries, and health care providers are not required to contribute to universal service." The ruling also states that "to the extent that states, schools, or libraries build or purchase wide area networks, the costs are not eligible for universal service discounts." The ruling was made in response to petitions filed earlier by ACUTA and others.

Stating that "the public interest would not be served" if these entities were required to contribute to universal service support, the FCC also determined that it "would be inconsistent with the educational goals of the universal service support mechanisms to require colleges and universities to contribute to universal service." Complete details are available at ACUTA's Web site: www.acuta.org.

What's Your Biggest Challenge for 1998?

Terry Robb, Univ. of Missouri, Columbia: Our long distance revenues are being forced down by competition in the form of new technologies, such as e-mail and Internet telephony, as well as traditional vendors. So my number one priority is to develop and sustain new revenue streams. We've depended on our long distance customers to provide funding for new switches and other necessary improvements. Now I must rethink how I generate revenues: I offer ethernet services; do I add high-speed data off campus (HDSL, ADSL)? Affinity long distance programs? Prepaid cards? I have to get creative in 1998.

Mike Bonafair, Shippensburg Univ.: My biggest challenge may be managing the workload. The number of projects we must undertake at one time becomes staggering. Specifically, I'm challenged to fulfill my role in keeping the university up-to-date technologically, delivering new services to the students and faculty. The students want and expect services such as Internet access and CATV. The faculty want distance learning and more technologically useful applications. I need to provide these services quickly but, at the same time, not so fast that we miss something and have to "clean up" later.

Judy DeNoyer, Principia College: We are installing new switches this summer, so my challenge is to buy today that which will be functional tomorrow. The technology that makes switches networkable is evolving, so our choices must be carefully thought out. We are working on an RFP for a consultant and taking advantage of opportunities to become better informed.

Margie Milone, Kent State Univ.: Our students and staff expect state-of-the-art technology without huge increases in student fees or departmental costs. How do we migrate to new technologies with limited budgets? How do we fund campuswide voice, video, and data services to connect to our seven regional campuses and to the rest of the world? We're exploring such options as corporate partnerships, endowments, and perhaps a bond issue as potential solutions.
Q: I hear a lot about new cabling standards such as Level 7, Enhanced Category 5 (Cat 5) and Category 6 (Cat 6) cables. What are these standards and where can I find them?

A: The ANSI/TIA/EIA 568-A standard for cabling defines performance parameters for building cabling. The categories in the standard apply to unshielded twisted pair (UTP) cable and include performance definitions for Cat 3, Cat 4, and Cat 5 cables. 568-A also includes standards for shielded twisted pair (STP) and fiber optic cable. TSB-67 includes additional performance parameters for testing UTP cabling systems.

Some manufacturers have introduced cable that is marketed as Enhanced Cat 5, Level 6, Level 7, Cat 6 or 7, and Gigaspeed. These claims are simply marketing hype to differentiate each manufacturer in the marketplace. That’s not to say that these are not good cables. In most instances, they are. Care must be taken in evaluating claims of meeting industry standards.

Currently, the TIA TR41.8.1 working group that writes and maintains TIA 568 is considering Enhanced Cat 5 and Cat 6 performance standards for inclusion in ANSI/TIA/EIA 568-B which is scheduled for an initial ballot in late 1998. The new standards will include new parameters for far end crosstalk (FEXT) and return loss that may or may not match what is currently being marketed as Enhanced Cat 5 or Cat 6.

The bottom line: Look carefully at the performance characteristics of the cable you are considering purchasing and be very careful about accepting claims of compliance with standards other than published TIA standards. The developers of the equipment that you will connect to your cabling use the published standards as their guide and you can hardly go wrong by doing the same.

For this answer, our thanks to: Bill Sewell, RCDD, Director of Facility Technologies at Sverdrup Facilities, Inc., Arlington, VA. Bill is also a member of the TIA TR4.1.8.1 working group. He can be reached at sewellwg@sverdrup.com

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**Board Report**

The Board held the monthly conference call on 12/11/97.

The President and the Executive Director reported on the CHEMA meeting held Nov. 23-24. President Milone noted a significant number of issues were discussed including the Summit 2000 volunteer project and that William Troutt from Belmont University was appointed chair of the Commission studying college costs. Ms. Semer reported on the presentation by the Director of Higher Education Marketing for Microsoft on trends in higher education.

The Board approved a draft objective and action items relating to the community service aspect of the Strategic Plan as presented by the Directors at Large.

Board Advocate reports included:
- Update on Universal Service actions including a discussion that AT&T had filed in opposition to granting USF exemptions to a series of five colleges in Ohio
- Recognition for undergraduates in the Student Paper competition

The Board also discussed the members' needs survey to be conducted by Fetzer-Kraus, Inc. Input will be requested from all committees before the end of January to help develop the survey questions.

Respectfully submitted,

Tony Mordorgy

Anthony Mordorgy
Bradley University
ACUTA Secretary/Treasurer

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**ACUTA NEWS, Vol. 27, No. 1**

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Visit our homepage: http://www.acuta.org

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**Spotlight**

Welcome to one of ACUTA’s most recent Corporate Affiliate members:

ADC Kentrox (www.kentrox.com) provides the industry’s most extensive line of network access solutions. We can help build and manage your voice, video, and data networks using frame relay, ATM, ISDN, SMDS, VPNs, PPP, or leased lines. Brian Gibson, 800/733-5511
Analyzing Cable Needs and Planning for the Future at CMU

David Zumbo, Comm. Facility Mgr.
Pete Bronder, Head of Data Comm.

Carnegie Mellon University

Computing Services at Carnegie Mellon, a leader in high-technology networking, recently took a hard look at future-proofing our network. An important aspect of our evaluation involved structured cabling systems.

More than ten years ago, Carnegie Mellon was granted products from IBM and installed its structured cabling system (SCS) based on shielded-twisted pair (STP) Type-1 and Type-2 media. While this SCS has served us well, it is now reaching the end of its life cycle. The IBM SCS can provide significant bandwidth if installed with certain cable and connectors; however, there has been a decrease in the production of those products and they are becoming scarce. Newer networking technologies are based on Unshielded Twisted Pair (UTP) which have physical differences beyond shielding, such as the amount of conductor pairs, impedance, cable diameter, connector type, and ease of installation.

Although UTP cable preceded SCS technology, UTP is again the technology of choice based on a larger installed base and continual availability as well as the development of improved UTP products. It is for these reasons that CMU made a decision to wire any future buildings or large, existing areas being renovated with UTP instead of IBM SCS.

A variety of UTP cabling is on the market today. The Telecommunications Industry Association and Electronics Industry Association (TIA/EIA) recognizes Category 5 (Cat 5) as a standard for the best quality UTP solution for data networks today. Newer UTP technologies which are superior to Cat 5 are being offered by manufacturers, but have not yet been standardized by the TIA/EIA. These include enhanced Cat 5 (Level 6) and Level 7 cabling. Improvements consist of Attenuation to Cross Talk Ratio (ACR), PowerSum ratings, and Structural Return Loss (SRL). Other improvements to consider include Near End Cross Talk (NEXT), Far End Cross Talk (FEXT), and Propagation/Skew/Delay, all of which help extend the usable bandwidth with the system allowing for greater data-carrying capacity.

CMU Test Results
Telecommunications performed a series of Layer-1 tests per Technical Service Bulletin 67 specifications of the TIA/EIA, using the Fluke tester (Model DSP-100 with upgrade 5.3 software). A series of testing was performed at different frequency ranges, i.e., 0-155 MHz, and worst pair/margin, set at 70% nominal velocity of propagation.

Although there are presently no standards by which to differentiate, we chose to test up to 155 MHz to compare products at that level to each other. The test consisted of TIA Cat 5 Standard Basic link + ACR. Tested were the Attenuation, PowerSum Near End Cross Talk (PSNEXT), PSNEXT Remote, ACR, and available headroom. All of the cables tested were comparable, with only a small degree of difference in headroom decibels.

A rough cost comparison between Cat 5, Level 6, and Level 7 found Level 6 to be fifteen percent higher than Cat 5 and Level 7 fifteen percent higher than Level 6. Level 7 cabling is comparable in cost to fiber optic cable.

Recommendations
At this time, we are recommending that Carnegie Mellon install Level 6 wiring. The product analysis committee has determined that purchasing higher-performance cable rather than standard Cat 5 cable will cost more up front, but will ultimately save money by avoiding some problems. Since we are currently installing Level 6 cabling, installing anything of a lower quality is a step backwards. Installing Level 7 cabling is not recommended at this time. Gigabit Ethernet products for UTP should be standardized and available within one year. This recommendation should be reviewed, and revised if appropriate, at that time.

Looking Ahead
Obviously technology will continue to evolve. If we arrive at a need to install Level 7 UTP or beyond, then more serious consideration should be given to fiber optics to the desktop. As networking technologies approach the speed of light, it becomes inefficient for the carrying capacity of copper wiring and the choice of media becomes a matter of physics. Although today's fiber electronics are higher in cost than the UTP counterparts, tomorrow's networks may reverse this trend.

There are other advantages to using fiber: It has plenty of bandwidth so re-cabling isn't as frequent. Fiber does not constrain the placement of wiring closets to the 90-meter limit of UTP. That amounts to a reduction of wiring closets. Fewer closets means better port utilization of the electronics with fewer unused ports in remote closets. One closet per building would mean only one area for servicing the network and only one area for which to consider environmental conditions. However, there is a concern with the added costs and the fragility of the fiber patch cables needed.

We expect to be asked to supply fiber to the desktop eventually, beginning with the more research-intensive areas but ultimately including other areas on the CMU campus.

For a copy of the complete analysis from which this article is condensed, contact Mary L. Pretz-Lawson at mlpl@cmu.edu

Tech Partners at Cal State

The 23-campus California State University system may join Fujitsu, Hughes Electronics, GTE, and Microsoft in forming a corporation "to administer the system's technology infrastructure and to manage procurement, user help desks, and other activities related to information technology," according to the Chronicle of Higher Education (12/10/97).

The idea was a creative response to state government's refusal to allow the institutions to charge students a technology fee to fund necessary upgrades to the infrastructure. According to the plan, CETI will begin operations in January and continue for at least ten years.
President's Column

Continued from page 1

part of the second? How many of these items actually concerned me, my staff, my department, my division, my university? I had to conclude that ALL of them already were or should be items for concern simply because they were identified by a majority who took the time to participate in this study. Satisfied or dissatisfied, these were the folks who "cared" enough about "our" university to respond.

We will be surveying the ACUTA membership in the near future, according to our strategic plan. Along with the other board members and the consulting experts who would also evaluate our members' responses, I participated in creating the last membership survey. I urge you to watch for this updated survey and "care" enough to complete the form and write in your comments. We truly believe in providing for members' needs through our association. We can best identify those needs from the responses we get. Please care enough to make your needs known!

Now that the holidays are behind us, the Lexington office staff is eagerly awaiting the Winter Seminar in Tempe. Registrations are well ahead of last year, with particular interest in the Legislative/Regulatory track. From Universal Service to access charges, telecom reform, caller ID, and a host of other issues, this track is sure to be exciting.

The second track for Tempe, "Managing and Monitoring Network Activity," is also attracting a lot of attention. As campus networks become more integrated and management challenges increase, campuses need more advanced tools for managing networks. Only a few campuses and companies are truly on the leading edge of this new technology, and they will be sharing their insights with attendees in Tempe.

As we get ready for another successful ACUTA Seminar, I would like to share some hints for getting the most value from this or any other educational activity. These are basic, common sense tips that we instinctively know, but sometimes it helps to think about them again.

"Top Ten" Tips to Maximize Time Spent at Seminars

10. Remove yourself from office pressures. Let the office function without you for a day or two (it's good for them, too!). Ask your colleagues to leave voice mail or e-mail messages, and arrange to check in at a set time each day, if you must.

9. Arrive early! Finding the seminar room early prevents stress from last minute rushing, and helps get you in the mood for learning.

8. Bring business cards. Seminars offer many opportunities for networking with higher education colleagues and vendors. Exchange cards with people with whom you'd like to keep in touch.

7. Introduce yourself to at least three people sitting near you. Be the first to break the ice and say hello. You're attending the same seminar, so you probably have a lot in common!

6. Take notes. Comprehension improves a lot when you both listen and write. Remember to write down questions, if the instructor can't be interrupted right away.

5. Participate in the discussion. You'll remember even more if you listen, write and speak. Adults learn best from their peers, discussing real-life situations.

4. Don't hesitate to ask questions. It's guaranteed that you aren't the only one needing more information about a particular point, and your fellow attendees will appreciate your willingness to ask. Besides, the instructor wants you to understand the material.

3. Make a list of "action items". Write down ideas that you can implement right away when you return to the office. Share your ideas and notes with coworkers and your boss.

2. Extend the learning. Do something to reinforce the new knowledge and information you've gained. Read a book or articles on the subject, begin a discussion group with colleagues, or refer back to your notes regularly. Keep the educational spirit of the seminar alive!

And the Number 1 way to maximize time spent at seminars...

1. Have lunch with someone you don't know—yet! This is a great opportunity to meet someone with an interesting background, and build professional relationships that can last throughout your career. Most ACUTA veterans will tell you that this is the Number 1 benefit of attending ACUTA events.

Have a great January, and I hope to see you in beautiful Tempe this month!

From ACUTA Headquarters

Jeri A. Semer, CAE
Executive Director

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Disconnection

Recently, according to 411 (11/24/97), a company was being plagued by disconnects, losing 20–30 calls on their main inbound trunk group per week which resulted in potentially significant revenue loss. Both the PBX vendor and the Local Exchange Carrier (LEC) tried for about four months to identify the problem with no success.

Finally, an independent arbitrator, Ellipsys (www.ellipsystem.com), was called in to monitor the system. Within a month the problem was identified as a “compatibility problem between pair gain units in the field and at the central office was causing the dropped calls.” The LEC quickly fixed things and all has been well since.

Toll-Free Numbers

Not long ago the FCC was rationing and limiting the release of 800 numbers. Now the same thing is being done with the relatively new 888 numbers which will run out before the scheduled implementation in April 1998 of the 877 block. Other numbers that have been set aside for future use are 866, 855, 844, etc.

The biggest problem associated with these toll-free numbers relates to so-called “vanity” numbers. For member institutions with vanity numbers, 411 offers two important tips: 1. Get there first. 2. Call any and all toll-free variations of your number (800, 888, etc.) to see who your calls may reach inadvertently.

Supreme Court

The high court recently received four separate petitions for a "writ of certiorari" (review) in connection with the rejection of core provisions of the interconnection order by the U.S. Court of Appeals for the Eighth Circuit. These petitions focus on three main issues: (1) Does the FCC have the authority to issue local competition pricing rules? (2) Can the FCC require LECs to allow requesting carriers to "pick and choose" individual pieces of interconnection agreements and use them in their own pacts? (3) Can the FCC require LECs to "rebundle" unbundled network elements for competitors? The four petitions were filed by: the FCC; AT&T along with about 9 other groups including long distance carriers, cable TV associations, and telecom resellers; a group of CLECs; and MCI.

The Supreme Court must now decide whether or not they will review the action of the lower court. This could provide direction for the FCC in the future.

Universal Services Fund (USF)

Every member institution should have received the ACUTA Legislative Alert regarding pending Universal Services Fund action. Just before the new rules were to go into effect, the FCC reconsidered and issued the ruling described on the first page of this newsletter. The bottom line is that our petition accomplished its purpose: Colleges and universities do not have to pay into the Universal Services Fund.

Another related headline of interest found in Telecommunications Report: "Schools and Libraries Officers To Receive $612,000 in Pay." The Schools and Libraries Corp. (SLC), a part of USF, chief executive officer's base salary is $200,000; the next three will get $160,000, $140,000 and $112,000. Yes, they add to the stated total and the top one is almost twice the salary of an FCC Commissioner. (TR 12/8/97)

Challenges for 1998

Continued from page 1

Tony Tanzi, Brown Univ.: Getting correct, concise information in today’s volatile regulatory environment is my biggest challenge. Trying to inform and communicate without clear, concise information is frequently the missing link to success. Close behind is having to interpret the financial and operational impacts of the Telecom Reform Act as we make decisions about budgets.

The overbearing question of how much will it cost to provide and maintain access to current and future technologies will take up much of my time. We’ll be examining the issue of how we address faculty/staff costs, room rates, fees, and rate schedules with the uncertainty and confusion that exist on the legislative front. These issues will have a direct impact on keeping our institutions financially competitive—something we’re all concerned about.

Sue Fisher, Univ. of Connecticut: Anticipating and reacting to FCC rulings is an ongoing challenge. With issues and rulings coming fast and furious, I can barely keep up, let alone understand them. Rulings may have a small or a very significant financial impact on my institution, but I find it difficult to accurately anticipate increases to respond to upper management when asked for forecasts.

Another challenge is the increasing demands from campus customers, for example, the integration of networks and the impact on traditional telecom functioning. People don’t perceive telephones in the same way they perceive data networks (and vice versa). The challenge is for data folks and voice folks to become best friends. True integration doesn’t exist on many campuses yet. Technology is changing so rapidly and bandwidth demand is increasing so quickly that it’s hard to step back and look at where you are and where you need to be going. It keeps us from being proactive and anticipating change. We have to keep up with demand but at the same time become more efficient and not duplicate services and support staff.
**Update**

Change in delivery of “Position Available” information

The number of position-available ads has increased substantially over the past few months, necessitating a change in the way we present this information. Beginning with this issue, only school/company names, position titles, and contact information will appear in the newsletter. Complete details will be available on the ACUTA Web site. If you do not have Internet access, call Pat Scott at the ACUTA office (606/278-3338) to receive a printout of the current listings. Please submit position-available information electronically to Aaron Fuehrer at afuehrer@acuta.org or to ACUTA’s homepage: http://www.acuta.org. If you post a position, please notify Aaron when the position closes.

**Positions Available**

- **Director, Information Technology Services, University of Southern Colorado**
  Contact: Linda Crawford, Asst. to Provost, USC, 2200 Bonforte Blvd., Pueblo, CO 81001-4901; phone 719/549-2090

- **Sr. Network Engineer WAN emphasis, Info. Tech. Svcs., Southern Methodist Univ.**
  Contact: Search Committee, Job 051727, SMU, Box 750232, Dallas, TX 75275-0232

- **Database Administrator, Berea College**
  Contact: Carolyn Howard, Human Resource Services, CPO 2289, Berea, Kentucky 40404

- **Assoc. Dir. of Networking & Communications, Western Kentucky Univ.**
  Contact: Assoc. Dir. of Networking & Communications Search, Dept of Human Resources, Wetherby Admin. Bldg., Rm. 42, WKU, 1 Big Red Way, Bowling Green, KY 42101-3576

- **Manager, Information Technology Support, Kirkwood Community College**
  Contact Human Resources, Kirkwood Community College, P.O. Box 2068, Cedar Rapids, IA 52406; (319)398-5885

**For Sale**

Nortel Option XT/71. System includes cabinet, memory card, CPU, power & other related cards. Contact Nancy Levine, Telecom Mgr., DePaul Univ. 312/362-8080.

**Welcome New Members**

**Institutional Members**

- Mary Baldwin College, Staunton, VA. Sam McGhee, 540/887-7201. Tier 1

**Corporate Affiliates**

**Copper Level**

- ADC Kentrox, Portland, OR. Brian Gibson, 503/350-6203
- Interral Communications, Eden Prairie, MN. Nancy Hellstrom, 612/942-6088, x115
- Mastec Comtec of California, Inc., Irwindale, CA. Dan Farias, 626/960-9515
- TelCon Associates of St. Louis, Inc., St. Louis, MO. Dorothy Lockard, 314/961-3211
- T-NETIX, Lewes, DE. Skip Walls, 302/644-9105

**1988 ACUTA Events**

- Spring Seminars: April 26-29, Cincinnati, OH
  Technology Management Issues • Disaster Preparedness & Facility Security
- 27th Annual Conference: July 12-16, San Diego, CA
- Fall Seminars: October 11-14, Dallas, TX
  Enterprise Networks • Marketing Student Services & Campus Security Issues