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One Year Later at BMCC

Probably no Americans and even few people in the world were left untouched by the disaster of September 11, 2001. But no campus was more directly affected than the Borough of Manhattan Community College, located until that day in the shadow of the twin towers. A difficult year later, according to Lou Anne Bulik in the campus public relations department, BMCC is poised to move on.

"Last October it was hard to come down here," Bulik says. "The smell of smoke was everywhere, and the pile of rubble was such a painfully visible reminder. We lost six students and three alums who were working in the World Trade Center or in the recovery efforts. But this spring was our highest enrollment ever, and we are maintaining high figures for the fall semester, too."

The main campus building at BMCC is four blocks long. It was used in the days immediately following the disaster by fire and rescue workers as a staging area as well as a place to sleep, eat, and shower. The Fiterman Building, a multistory structure, had just undergone a $64 million renovation to provide 40 classrooms and a state-of-the-art technical center complete with computer lab and virtual library. A wall was blown out of this building, and now the work must begin again.

The campus was crowded before, according to Bulik, but now it is even more crowded. Temporary classrooms have been set up, and the cafeteria was carved up to make room for meetings and conferences.

Also destroyed were all of the fiber-optic telephone feed lines. Only about 20 of the copper lines were left in place. BMCC also lost the service of Verizon, its telephone and Internet provider.

"We had a choice—we could wait a few months to get our telephones back, or we could switch to a new system," Joe Giummo of the College Computer Center said in the campus newsletter (Inside Manhattan, Vol. 3, No.1). BMCC chose to switch to a new Internet-based telecom system.

Fortunately, the college already had in place an alternate infrastructure for wiring the phone network and data network. The new system allows the college to consolidate and make better use of its telephone lines. "We had 1,200 phone lines; now we have 600," says Giummo. (Contact Joe at jgiummo@bmcc.cuny.edu.)

On the first anniversary of this tragedy, it is difficult to look back. But the compelling stories of heroism in the face of terror have helped BMCC—and the rest of us—commit to securing the future.

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10 Welcome New Members
Summer has passed by so quickly and most of us are either rushing through the process of preparing for students to return to campus or have already been through this process. What will this new crop of incoming freshman expect? Parents have been calling campus for over three weeks now wanting to know what types of wireless applications are available on campus, such as laptops, PDAs, and IP services. I do remember the 'good ole days' when our greatest challenge was providing enough pay phones per dorm floor. Parents called us complaining and pleading to have their son or daughter call home, as they had not heard from them for over a month.

All of these new devices bring new challenges to revenue generation, LAN/WAN demands, and LAN security. We must think about and address what types of policies or strategies we use for rate shaping, and determine the best method for partitioning traffic on our voice and data networks in the converged environment. Nowadays, students don't just expect cable TV in their rooms. They are expecting and demanding IP-based entertainment-on-demand services. PDAs now play music files and full-length movies, as well as provide cellular connections. Last year, The Chronicle of Higher Education reported that the University of South Dakota provided handheld computers to all of its incoming freshmen, as well as to first-year law and medical students. [http://chronicle.com/free/2001/05/2001050301t.htm](http://chronicle.com/free/2001/05/2001050301t.htm), Roger L. Kozack, the Vice President of University Relations, stated, "Students will be able to do e-mail, take class notes, transport papers and books, and reference documents. It is almost a way of replacing most of the backpack." Portability and mobility are here to stay.

Web-based and wireless technology has forced higher education institutions to take a serious look at security and the issues of access control. It has also forced many IT organizations to update their infrastructure to meet the demands of technology. These processes must be considered a part of the price of doing business instead of being viewed as a one-time budget allocation. New business models must be established along with a communications technology strategic plan that meets and addresses the mission of the institution. Other factors that should be included as a part of this process are technical support, network administration, and the cost of equipment ownership.

As the waters become muddy due to the convergence of various technologies, and a more personalized self-service atmosphere arises, the higher education environment continues to become more complex while resources continue to decline. As a result, it has become increasingly important for the CFO (Chief Financial officer) and the CIO (Chief Information Officer) to coordinate and work as a team in order to achieve the optimum potential of communications technology advantages in the higher education environment. It is also important to develop cost recovery models and charge backs for services provided to this new student environment. How do we effectively offer these broadband on-demand services? When do we need to say no, and what services do we either stop providing or enhance? What benchmarks do we establish? Most important, how do campuses provide student demands within the current declining IT budgets? Service that is available twenty-four hours a day, seven days a week is now the norm for most campuses.

Interested in hearing about how some of your peers have established cost recovery plans for their institutions? Take advantage of the sessions for the fall seminars taking place October 20-23, 2002 in Denver where Dave Carr (Director, Telecom and Network Services at Northwestern University) will talk about what their cost recovery model looks like, how it is built, and how they charge back for all services to their community. Maurice Ficklin (Technical Services Manager at the University of Arkansas at Pine Bluff) will talk about how his campus charges students for applications offered over their IP converged network, such as television and wireless IP phone service. Matt Arthur (Associate Director, NTS-Residential Technology Services,
Washington University in St. Louis) will talk about working with residential students to develop policies and practices for allocating network services. Until next time...

Welcome to the first installment of Tech Talk, a regular column designed to offer insight into the new and emerging technologies that ACUTA members encounter in the course of their duties.

To kick off this column, we will address one of the new breed of acronyms—RPR, or Resilient Packet Ring. But first, I should introduce myself. Some of you may even recognize my name from my days as a magazine editor. I am now in public relations, in charge of the technology practice at Dux Public Relations, a Dallas PR and marketing agency. I have been involved in technology for the past 15 years, both in public relations and as a longtime editor of Communications News, where I worked closely with ACUTA.

Now, let’s look at RPR, which shouldn’t be confused with APR, which is what you pay on car loans, or CPR, which we certainly hope you don’t need anytime soon.

Resilient Packet Ring technology is an answer to the need to carry packet-based data traffic over the current ring architecture of the metro and wide area network. Ethernet, of course, rules the local networks, while our beloved public network grew up quite nicely carrying circuit-based voice traffic. However, the public network’s SONET fiberoptic design, with rings, time division multiplexing, and voice-centric bandwidth chunks isn’t the best fit for data traffic. And we all know that data traffic is growing many times faster than voice traffic, so the situation isn’t going to improve on its own.

RPR—to get technical here—is an alternative Layer 2 technology that addresses the multiservice transport requirements of metro networks, providing a new Media Access Control, or MAC, layer that leverages Ethernet’s physical layer. Ethernet is primarily a point-to-point technology that doesn’t address the transport requirements of ring-based networks.

RPR’s proponents are careful to note that it is not intended to compete with Ethernet. It does, to some extent, compete as a transport protocol, but not as an end user service.

RPR takes advantage of the restoration benefits of ring networks, with restoration times less than 50 milliseconds, so this assures a reliable, resilient architecture. It also uses bandwidth on the ring very efficiently, through spatial reuse, allowing multiple simultaneous messages on the ring. It leverages bandwidth through statistical multiplexing within a single optical channel and by eliminating bandwidth partitioning between services.

While your typical customer for RPR will be a public network service provider, the technology does have enterprise applications within data centers, contained local area networks, or certainly in campus applications where a university is functioning as a telephone and transport service provider.

Work continues on a standard (IEEE 802.17) for RPR, and pre-standard products are available. Some 17 companies, large and small, are involved in the Resilient Packet Ring Alliance, and there is excellent information about the technology available on the alliance’s Web site, www.rpralliance.org. Now you know enough about RPR to sound up-to-date and well-informed, which is almost always a good thing. Hopefully, this first column has done its job. By the way, if there are specific topics you would like to see covered in this space, please let me know via e-mail at kevin@duxpr.com. We invite you to visit our Web site at http://www.duxpr.com.

by Kevin Tanzillo
Dux Public Relations

RPR:
An Emerging Acronym
1. IP-PBXs use circuit switching communications techniques
Almost all IP-PBX systems require use of a TDM transmission bus to support multiparty conference calls, and may also use traditional circuit switching connections in a media gateway to support local non-IP peripherals (stations and/or trunks). Several systems classified as client/server IP-PBXs, but are also designed to support traditional common equipment cabinets and port circuit interface cards using traditional PCM/TDM switching techniques.

2. IP-PBX system reliability and survivability are dependent on nonredundant Ethernet LAN switches
You are only as strong as your weakest link, and all IP-PBXs are dependent on LAN switches for transport of both control and communications signaling. Although a redundant Layer 2 LAN switch design may be used to increase system reliability and survivability levels, the always nonredundant local LAN switches used to physically connect call telephony servers and standalone media gateways to the network are prominent Single Points of Failure. Many IP-PBX systems are based on a single-call telephony server that is 100% dependent on the availability of a local LAN switch for system operations. LAN switch reliability and survivability today is not remotely equal to the 99.99+% uptime of legacy circuit switched PBX systems, and that means taking a potential step backwards when installing an IP-PBX system.

3. IP-PBX systems are not as "open" as they pretend to be
Many systems claiming to conform to industry standards do not conform to industry standards. Very few IP-PBXs adhere strictly to H.323 specifications, and some IP-PBXs use wholly proprietary control signaling techniques. Nonconformance means that off-the-shelf telephones and media gateways are not standardly supported. You cannot easily mix and match IP telephones across different IP-PBXs if you want full performance capabilities at the desktop. Most IP-PBXs use proprietary IP telephones, similar to "closed" circuit switched PBXs. In addition, the emergence of SIP threatens to obsolete today's H.323 terminals, MCU's, gatekeepers, and gateways, unless firmware downloads are provided for an upgrade. H.323 and SIP telephones cannot be supported within the same IP-PBX without major hardware/software additions to the system. When there is more than one standard, there is no "standard."

4. An IP-PBX may not support many of traditional PBX features and functions you are accustomed to (from the 1980s!)
A few of the client/server IP-PBX systems from suppliers of traditional circuit-switched PBXs support the same feature sets as the legacy systems, but most of the new IP-PBXs have major gaps in their feature/function software. The functional areas with the most performance gaps include: attendant console features; multisystem networking; ACD, and hospitality. Most everyone needs full-function attendant console positions that support incoming call queues, and trunk group control and access. Many customers have multiple premises networking requirements, but the intelligent networking features introduced on an analog AT&T Dimension PBX system 20 years ago are missing from more than a few of the new IP-PBXs. Several of the new IP-PBX systems have no integrated ACD features and require applications software running on an adjunct server to support voice contact center requirements. Customers in the lodging, hospital, and dormitory market sectors cannot be served by many new IP-PBXs, because traditional hospitality feature sets are missing. Legacy PBXs have more than 500+ features; many of the new systems have less than half this number, sometimes far less. One of the new system suppliers includes dial tone in its feature list, merely to pad the list. I assume it is a standard feature, and not an option.

5. An IP-PBX is likely to support a limited range of expensive IP telephone instruments
A few IP-PBX suppliers have a strong portfolio of IP telephones that compare favorably to the depth and range of typical digital telephone portfolios, but most of the new systems are limited to a few desktop instruments (three or less) that are much higher priced than comparably equipped digital telephones. There are currently no hard IP attendant con-
10 Things...

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soles; PC client softphone options are used for attendant positions. One of the main selling points of an IP-PBX may be support of an IP telephone with an integrated thin client browser, but these instruments are typically characterized by a very high price tag, and can be more expensive than a desktop computer (with a printer and scanner thrown into the package).

6. Powering IP telephones is optional, and in-line power standards are not yet finalized

An IP telephone requires local AC power, or in-line power over the LAN. The local power option may be less costly than the in-line power option, but the cost to provide UPS at every desktop may offset this price difference. Current in-line power costs can add between $50 and $100 per station to the system price. The Ethernet LAN switch providing the power distribution should be equipped with UPS, if the entire building does not have an emergency power generator.

The IEEE 802.af in-line power standard for IP telephones is very close to being finalized, but the same thing could have been said a year ago. In the meantime there are several proprietary in-line power options available from a variety of sources, including a few IP-PBX system suppliers, but some of these options are not likely to work with third party IP telephones.

7. Support of analog communications devices may be too expensive to afford.

Analog communications devices, such as telephones, modems, and fax terminals, require media gateways for communications over an IP-based LAN. The cost of a media gateway to support an analog terminal ranges from about $200 to $400 per port, based on the IP-PBX system and design configuration. The high price of media gateways discourages the use of inexpensive analog telephones, but is unavoidable if analog modems are required as emergency Internet access devices in case of LAN failure, or if fax terminals are still used. The media gateway equipment should also be equipped with a UPS option, adding to the already high cost of analog terminal support. Whenever a $50 analog telephone requires several hundred dollars of interface equipment, it becomes less costly to replace the instrument with an IP voice terminal. Unfortunately, the same scenario is not viable for a fax terminal, modem, or other analog communications device.

8. IP-PBXs are likely to require traffic engineering of media gateway channels (in addition to LAN/WAN QoS engineering).

Extensive LAN traffic engineering efforts are required to establish and maintain an acceptable QoS level for IP telephony across the transmission/switching network, but media gateway channels must be also traffic engineered to support LAN access/egress for all non-IP peripherals. Not all IP-PBX system media gateway options are designed for nonblocking support for supported peripherals, IP and non-IP alike. Gateway channels are required for all communications between non-IP and IP peripherals. No gateway channel, no media protocol conversion, no talk. Media gateway cards are typically priced at a few hundred dollars per channel, and must be traffic engineered for busy hour traffic conditions simulating a worst-case scenario.

9. IP-PBX systems may be more expensive to buy, and more expensive to maintain.

The cost of an IP-PBX system is not always less than a circuit-switched PBX system. It could, in fact, be much higher. The high cost of IP telephones, power options, and LAN/WAN upgrades may easily outweigh the cost savings of a single cabling infrastructure. Protocol stack licenses may not be included in the system equipment price, and may be priced as an additional software RTU fee. These fees range from about $50 to $200 per IP port, based on system model and configuration. The personnel costs to monitor and engineer and the LAN/WAN to maintain IP telephony QoS can easily dwarf any savings attributable to integrated voice/data communications over a single cabling infrastructure. VoIP trunk savings can just as easily be gained using external gateway equipment behind a circuit switched PBX system. There is no doubt that IP telephony equipment prices will decline, and LAN/WAN reliability and QoS levels will improve, but that will benefit tomorrow’s IP-PBX system installation, not today’s.

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10. At the present time there are few functional performance benefits of an IP-PBX system compared to a circuit-switched PBX system.

An IP telephone may have an integrated thin client browser for more information display downloads, but what else is new about an IP-PBX system in terms of useful feature/function capabilities? Unified messaging and mixed-media contact centers are not directly linked to IP telephones, although these functional application options are usually touted as benefits of an IP-PBX. There are unified messaging and mixed-media contact center installations working with PBXs at least 10 years old with no IP telephones in sight. IP telephones can be easily moved around the office, but so can digital telephones without administrator programming. Unless a system installation can benefit from distributing port interface equipment across a LAN/WAN infrastructure supporting a campus or multiple premises configuration, an IP-PBX system used to support an IP telephone on the desktop makes little or no sense in today's environment, if it means replacing a perfectly fine digital telephone. It may be more cost effective to support a remote IP telephone than a digital telephone, but this is an economics issue, and not a new system capability.

Closing Remarks

Telephony over IP (ToIP) communications is currently classified as an infant technology about to enter adolescence. Adulthood is still several years away. Now is the time to try IP telephony, but now may not be the time for everyone to replace an existing circuit-switched system with an all-new IP-PBX system. The majority of currently installed PBX systems can easily be upgraded to support one or more IP telephony options: station, trunk, or distributed-port interface carrier.

Evolutionary migration towards a converged communications system using an IP LAN/WAN is highly recommended. Revolutions are usually followed by a chaotic period in which some of the revolutionaries have been known to lose their heads during the resulting upheaval. Make sure you don't lose your head when upgrading or replacing your current PBX system.

Allan Sulkin, president of TEQConsult Group, is a recognized enterprise communications system authority. He is also a contributing editor to Business Communications Review magazine, and the course developer and Instructor for Key3Media/BCR's Understanding PBX Systems seminar. The TEQConsult Group PBX Systems Feature/Function Matrix book is available at www.bc.com, and his recently published bestselling book PBX Systems for IP Telephony (McGraw-Hill Professional) can be ordered from any of the major online booksellers, such as Amazon.com.

The Web Site Recognition Task Force congratulates the two schools selected for this quarter for having outstanding sites that exemplify the best use of audio/visual/animation.

Illinois Institute of Technology
http://www.iit-online.iit.edu/internet/demos

Bridgewater State College
http://it.bridgew.edu/Telecomm/vidserve.cfm

The topic for next quarter will be "Communications Services for Students.”

Nominations are due by November 1.
Greetings from Whitney

Hi everyone! I am back at some of the volunteer work I used to do. ACUTA is one of the most important works that I have spent time on in the past, and I hope to be able to continue for a while.

Thanks to Randy Hayes for putting together the material for the DC Update for the last three months. It's nice to have such a competent backup to call on!

I also want to thank all of you who sent cards and notes and had me in your prayers. You can be sure that those prayers helped with my recovery. The doctors found a blood clot, likely due to a fall and/or a bump on the head, on the right side of my brain. The clot was removed, and I was in the hospital for 15 days while they did what they could to be sure it was safe for me to be out walking around. It was almost two months before they met me drive a car. Things seem to be getting back to normal now, but it is a slow process.

Bankruptcies

Several of the small local exchange carriers (LECs) have had to file for bankruptcy in the last couple years. WorldCom is the largest and has the potential to impact many ACUTA members.

If you are a customer of a company that has filed for bankruptcy protection, that company is counting on your continuing to use their service and pay the bills. According to attorney Ken Irvin, a partner in the law firm of Morrison & Foerster in Washington, D.C., who was quoted in The Telecom Manager's Voice Report (VR, July 29), the filing may be an opportunity for business users to resolve outstanding billing disputes with the carrier, because "WorldCom now needs you more than you need it."

WorldCom has laid off about 17,000 employees and that means customer care and provisioning is likely to deteriorate over the next two to four months.

Many of the LECs are concerned that the access fees and other charges will not be paid in a timely manner by WorldCom. "Verizon has filed a tariff with the FCC that would let it require security deposits or advance payments from carriers that want to access its network but 'demonstrate a financial concern.' Unless the FCC objects, the tariff becomes effective in 15 days. (VR 7/29)

According to Telecommunications Reports (TR 8/12, 8/19) "WorldCom estimates that it pays LECs $750 million a month for local access, interconnection, billing, and other services. In turn, LECs purchase services from WorldCom worth $455 million per month." By mid August hundreds of objections had been filed by LECs that claimed WorldCom's payment plan was insufficient. They want more protection. (TR 8/12) A bankruptcy court has come up with a payment plan for WorldCom, Inc., that includes some, but not all, of the protections being sought by the LECs.

FCC Chairman Powell "says a significant service disruption is unlikely" as a result of the filing by WorldCom. However, attorney Hank Levine (Levine, Blaszak, Block & Boothby) advises WorldCom customers to "get dedicated connections from two carriers to key locations like headquarters and data centers." He also recommends that they "make sure a carrier other than WorldCom supplies the dial backup for your dedicated data lines." (VR 7/29)

If you have an active contract with WorldCom, "you only can exit the contract by claiming a serious breach and having it upheld by the bankruptcy court. 'It would be difficult to walk away now if WorldCom is not in default with billing or customer care,' Irvin says." If your contract expires "you are NOT obligated under bankruptcy law to stick with the carrier past the contracted term, plus any notification requirement." (VR 7/29)

New FCC Commissioner?

As of July 10 Jonathan Adelstein has been officially nominated to fill the open seat on the FCC. An aide to Senate Majority Leader Daschle, he seems to have the support of most of the Senate. Adelstein got through the confirmation hearing, and although Senator Daschle hoped to have the nomination before the Senate for a vote before the August recess, it did not happen. (TR 7/22)
Moody’s Considering Downgrading LECs

Moody’s Investors Service is considering downgrading the debt ratings of BellSouth, Verizon, and SBC. These companies have kept strong investment-grade ratings during the recent market downfall and that is not expected to change, but Moody’s is looking at the companies’ finances for areas of potential weakness. (TR 8/12)

The other major LEC, Qwest, is being looked at very carefully by various government agencies as a result of some of its accounting practices. (TR 8/19)

911

The FCC’s Wireless Telecommunications Bureau has asked the three major wireless carriers for an explanation of the plans the carriers have developed to curb inadvertent 911 calls. Some wireless phones have pre-programmed 911 keys that initially were considered a useful feature, but the number of unintentional calls and the burden they place on public safety officials suggests that more harm than good has been brought about by this feature. (TR 8/12)

The FCC is giving the small and midsize wireless carriers more time to deploy Phase II E911 services. The small carriers with under 500,000 subscribers will have until Sept. 1, 2003, to deploy the system. The midsize carriers with more than 500,000 subscribers will have until March 1, 2003. The extension turns out to be 13 months for the small carriers and 7 months for the midsize group. These dates are when the carriers must begin to deploy the service, but they do not have to be fully functional until Dec. 31, 2005.

Global Crossing’s Plan

A bankruptcy court has approved a bailout of Global Crossing Ltd., by two Asian companies, Hutchison Whampoa Ltd., and Singapore Technologies Telemedia Pte. Ltd., which have agreed to pay $250 million for 61.5 percent of the shares of a reorganized Global Crossing. The remaining 38.5 percent equity will be distributed to the company’s creditors, along with $300 million in cash and $200 million in new debt securities. It will take until early next year for Global Crossing and the Asian firms to complete the transaction, which requires regulatory approvals. In addition, Global Crossing still must win bankruptcy court approval for the reorganization plan. (TR 8/12) Global Crossing is one of the smaller interexchange carriers with customers all over the country.

Universal Service Fund

Endorsing the suggestion of most industry players, the federal-state joint board on universal service has recommended that no changes be made to the current list of services that are eligible for universal service support. They were not able to agree on whether equal access satisfied the statutory criteria in section 254(c) of the Telecommunications Act of 1996 and whether it should be added to the list. (TR 7/15)

The state members of the joint board have also made a recommendation to the FCC that the method of collecting USF contributions be changed to a connection-based plan rather than the revenue-based plan that has been in use since the fund started. The recommendation would have a fee of $1 monthly per residential, single-line business, or wireless connection; a $.25 monthly fee on paging connections; and the remainder to be paid by multiline business customers. It was also recommended that there be a cap of $1 on the residential, single-line business, and wireless connections. (TR 8/12)

Local Number Portability

The FCC decided July 16 to give wireless carriers an additional year to comply with the FCC’s LNP mandate. This decision did not please everyone. The wireless industry wanted permanent forbearance or at least a longer extension while some of the state regulators and consumer advocates wanted either no delay or a shorter postponement of the deadline. At least the decision broke a deadlock that for several months has stalled action on the issue.

The year delay represents a compromise among the commissioners — Powell wanted an 18-month delay, Abernathy wanted a delay of from 18 to 24 months, and Copps and Martin wanted only a six-month delay.

This new date for LNP also relieves some of the pressure caused by having the same deadline for both LNP and thousand-block number pooling. The Commission said that carriers must comply with the 2003 deadline “absent extraordinary circumstances.”
As the association that represents higher education communications technology professionals, ACUTA sometimes receives inquiries from the press on telecom and technology issues. In the past three months, the number of these calls has doubled or tripled—more than I have ever received in my eight-year tenure with ACUTA. From local newspapers in medium- and large-sized cities to higher education trade press to the wire services, they have all taken note of what they perceive as a major issue.

And what issue has caught the attention of the press from all corners of the U.S.? What major educational development has caused even CNN to devote five expensive minutes of air time this morning, amidst reports of the President's economic summit, unprecedented floods in Eastern Europe, and unstable world affairs?

Is it the value of distance education, the use of technology to enhance teaching and learning, the vulnerability of campus networks to cyberattacks, or incredible new developments in technology that are being developed and trialed on our campuses? No—it's students and cell phones! Somehow the press has focused on the fact that cell phone usage among students is increasing, and this is reducing campus telecom revenues.

Am I alone, or does this seem like a rather obscure matter for organizations such as the Associated Press and CNN to be reporting on? Of course, ACUTA members are well aware that student participation in traditional university telecom programs is shrinking. Hopefully, you will be prepared with a positive answer if questioned about the issue by the local press or student newspaper.

Most of our members have been aware of this trend for some time, and have responded by negotiating reduced telecom costs for their students, broadening the range of products and services that they offer, and seeking partnerships with wireless companies and other vendors that can offer services that students and faculty desire.

For the past several years, ACUTA has offered a seminar track addressing this important topic, and the next one will be in Denver this October 20-23. In "Student Services and Revenue Generation," a series of presenters, including primarily your ACUTA colleagues, will present case studies on how they have been able to restructure their services to generate new sources of revenue that are so critical in these tight fiscal times.

In sessions such as "Charging for Internet and Network-Based Services," "Revenue Possibilities in the Cellular Arena," "What Will Students Want Next?" and "Business Strategies to Improve the Bottom Line," ACUTA members will learn about successful strategies to generate revenue and reduce costs.

If you come away with only one successful method of generating new revenue, the return on investment for attending this seminar will far exceed the time and money spent.

ACUTA members have a reputation for tackling tough issues with a positive attitude. A phrase comes to mind that has been used frequently over the years by ACUTA members—"If it is to be, it's up to me." I hope you will join your colleagues in Denver to learn, and contribute your ideas, on this important subject.

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**Board Report**

**August**

The ACUTA Board did not meet in August. The next board report will appear in the October newsletter.
Welcome New Members

Institutional Members

California Baptist University, Riverside, CA
Adam W. Smyth, 909/343-4488. T1 ................................ www.caibaptist.edu
Siena Heights University, Adrian, MI
Dean Van Horn, 517/264-7676. T1 ................................ www.sienahts.edu
Southern Polytechnic State University, Marietta, GA
William Gruszka, 770/528-3440. T2 ................................ www.spsu.edu
University of Alaska-Southeast, Juneau, AK
Michael Ciri, 907/465-6570. T2 ................................ www.uas.alaska.edu

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George Young, 215/793-4880 .............................................. www.corpratetel.com
CTS is an alternative provider of directory assistance services and the only company that combines both telephone company data and operator services. Our clients always have an operator answer the phone.

Metropolis Technologies, La Jolla, CA
Erynn Dalton, 858/488-4600 .............................................. www.metropolis.com
Metropolis Technologies manufactures OfficeWatch Call Accounting, a Windows-based, feature-rich call accounting package designed to reliably track, price, and analyze administrative and student phone usage.

Packeteer, Cupertino, CA
Jennifer Geisler, 408/873-4534 .............................................. www.packeteer.com
Packeteer solutions are used by more than 650 universities to monitor, control, and accelerate the performance of important applications. By managing network traffic Packeteer aligns application performance with academic and business priorities.

If you're charged with protecting your organization's tangible and intangible assets, you may want to subscribe to CSO, a new magazine from the publishers of CIO. CSO will provide in-depth analyses, case studies, hands-on best practices for balancing the safety, security, and privacy of your enterprise while achieving business success through connectivity. It will also feature interviews with top security executives.

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