2-2003

ACUTA eNews February 2003, Vol. 32, No. 2

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No Surprise: Record Number of Students Own Cell Phones

Student Monitor makes a business of knowing how students are using their telephones on campuses coast to coast. Each spring their professional researchers go to campuses to interview hundreds of students face-to-face. The information they gather can be very useful in making decisions on campus and in identifying trends in telecom services.

Based on surveys conducted in the spring of 2002, Student Monitor states unequivocally that cellular phones are increasingly meeting students' needs. They are mobile, practical, and convenient, and students have come to regard them as an economical replacement for traditional long-distance service. ACUTA members are well aware of the dramatic impact this trend has had on long-distance as a source of revenue.

Competition among cell-phone service providers is bringing lower rates and more free minutes all the time. In the most recent study, students had an average of 1,567 free minutes, an increase of 143% compared to the previous year. In the study, students who had cell phones paid an average of $41.97 monthly, down 3% from the year before and down 8% from the year 2000.

The actual number of students who had a non-cellular phone had dropped 4% in the last year. Even though 91% of students still had a non-cellular phone in their room (or apartment), this data illustrates that students are realizing that cellular can completely replace the traditional phone. Even though the number of non-cellular phones had not dropped substantially in the past year, 30% of students (compared to 23% for the previous year) chose not to take a long-distance provider.

Overall, students were only making 2% fewer calls than they did the previous year—a modest decrease. However, what is important is the shift from traditional calls to cellular calls. Students made 70% more cell phone calls than in the previous year. Cell phone calls represented 53% of all calls made monthly.

If this kind of information would help you as you plan strategically for your campus communications, be sure you attend Eric Weil's session at ACUTA's Spring Seminars in Norfolk. Well, who is managing partner of Student Monitor, will speak at 1:00 on Tuesday, April 29. For more details or to register online visit our Web site at http://www.acuta.org.

<table>
<thead>
<tr>
<th>Long-Distance Calling Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>Direct Dial</td>
</tr>
<tr>
<td>Prepaid Phone Cards</td>
</tr>
<tr>
<td>Collect Calls</td>
</tr>
<tr>
<td>Post-Pay Calling Cards</td>
</tr>
<tr>
<td>Dial Discount Codes</td>
</tr>
<tr>
<td>Internet</td>
</tr>
<tr>
<td>Credit Cards</td>
</tr>
</tbody>
</table>

Source: 2002 Student Monitor
Strategies for Tight Budgets

From the President
Jeanne Jansenius
University of the South

Just about any newspaper that you pick up nowadays mentions the impact of tight budgets on higher education. For almost a decade public colleges and universities have reaped the benefits of fat state-budget surpluses and successful endowment investments. Unfortunately, those days have come to an abrupt halt, and many states with pinched pocketbooks once again look to cutting higher education in order to balance state budgets. Additional financial factors creating tighter budgets include declining stock values and endowments funds.

What role will ACUTA members play in their campus budget process? For those who were unable to attend the January seminar (most likely due to budget constraints), Michael Zastrocky, Vice President/Research Director with Gartner, Inc., said, "By 2005, 80 percent of higher-education CIOs will be required to document the business value of IT." This will not only impact your purchasing power, but will make it difficult, as a manager, to replace or hire qualified employees due to mandatory hiring freezes. As a result, institutions must change their business strategy from a peer-to-peer competitive environment to one that supports the mission and business value of the institution.

As Michael Zastrocky pointed out in January, The business value of IT activities can be measured by mapping them against four key drivers:

- Price and Service Levels: Do the scopes work? Do the delivered service and price meet the business unit's requirements? Are they reasonable?
- Customer Satisfaction: Are the students, faculty, and staff satisfied with the service they receive? Are their expectations reasonable?
- Contracts and Relationships: Does the management of the contracts and relationships meet the needs of both the service provider and the institution?
- Vision and Alignment: Is the IT vendor/provider aligned with the strategic objectives of the institution? Can they both meet their goals while responding to business and technology change?

Additional planning strategies should include:

- Adopting life-cycle funding and charge-back strategies for IT
- Assessing your current environment and working in collaboration with instructional and research faculty and appropriate administrators in order to meet your specific institutional objectives in light of your existing technology infrastructure and funding mechanisms. Concentrate on a few good projects with superior cost/benefit trade-offs and moderate risk levels.

- Identifying opportunities within your current budget base that could utilize mechanisms such as equipment leasing, cost-based charge-back models, and service integration of voice and data technologies.
- Formulating appropriate strategies for developing a rich set of integrated information services tailored to your educational environment.
- Categorizing and scoring projects using multiple criteria that reflect management objectives. Scoring models should reflect the enterprise's objectives and business drivers, taking into account factors involving benefits, cost, and risk.

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Tight Budgets
continued from page 2

Brother, Can You Spare Some Computing Power?

by Kevin Tanzillo
Dux Public Relations

• Identifying strategic directions, capabilities, and objectives for campus IT support, including learning technologies.
• Forming a strategic technology team that brings together staff, leadership, and other stakeholders to explore the potential of technology and its impact on your organization.
• Valuing the resources you have and using them wisely—human or material.

A parting thought from (the highly successful) Oprah Winfrey: "Surround yourself with only people who are going to lift you higher."

Until next month...

This month we’re going to talk about Grid Computing. This is one of those topics whose name makes sense after you understand it. We might have called it "computer power sharing" or "computer pooling." But they didn’t consult us about the name, so that’s the way it goes.

Grid computing is a method of sharing the power of a number of distributed computers, and focusing all of that power toward solving a hugely complex problem that a single computer, as powerful as it might be, can’t handle. A number of universities are involved in projects such as this. Massive mathematical calculations connected with things such as astronomy research or genetic calculations would be ideal candidates for grid computing.

One way to think of grid computing is server clustering on steroids. The name is derived from its grid-like architecture (think electrical utilities here for a good comparison). It draws and coordinates unused CPU power from widely distributed computers and, in theory, makes sure that computing power is never wasted.

The software that accomplishes this first divides a large, complex task into pieces, then finds spare processors and other resources on the grid. It distributes the mini-tasks to them and monitors their progress. The results are aggregated so that the task can be completed.

Grid computing comes in several scopes. There is the local cluster, which usually has a main grid server on a single high-speed network. Then there is the grid campus, which involves a large number of grid servers, with processing done behind a firewall. The super-sized global grid uses machines anywhere on the Web or in connected private networks.

It is the global grid projects that attract attention, such as the United Devices Cancer Research Project, which uses grid computing to process molecular research; and the TeraGrid optical research network, which links computers at the University of Illinois, Northwestern University, Argonne National Laboratory, and the National Center for Supercomputing Applications.

Global grids are the trickiest, requiring major effort to assess the available resources and schedule tasks on the connected machines, because they can vary so widely in their response times as a result of the latencies on the Internet and other networks.

How, you may ask, does one become involved with grid computing projects? As a "donor," there is freeware that you can download that enables you to contribute processing power to a specific project. If you are looking for a project that works within your own organization, there are a number of commercial vendors who sell grid toolkits.

One source for additional information is the Global Grid Forum (www.gridforum.org), whose mission is to focus on promoting grid technologies and applications. The forum sees itself as a "community-initiated forum of individual researchers and practitioners" who seek to develop a broadly-based architecture for this well-intended technology approach.

As always, 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.
Wireless Services Coverage Problems Persist In-Building

by James McCoy
Innerwireless Inc.

Part two of a two-part article.

In the January ACUTA eNews (available on the ACUTA Web site at http://www.acuta.org), part one discussed (1) Quality of Service and (2) Signal, Noise and Interference.

Signal Propagation

The radio frequency signal is either weakened or blocked by any object that it encounters. RF signals can't effectively penetrate buildings from the outside because construction materials act as a barrier, resulting in inconsistent or even nonexistent wireless coverage and service indoors. Antenna placements and radiation pattern selection is always a compromise. It is never acceptable to base the total number of antennas for a project, or their placements, upon a rule of thumb such as "each antenna covers a 50 ft. radius." Inside buildings the architecture and aesthetics may significantly limit the choice of antenna types. Each antenna placement must avoid blockages while the pattern must provide area coverage and penetration through walls. Because significant reflections, called multipath, are a concern, care must also be taken to provide multiple/diverse propagation paths to insure signal quality. Consideration of requirements to confine the new coverage to a finite area will normally result in many of the antennas being driven by different RF signal levels.

The signal propagation properties of materials greatly vary. Metals completely reflect RF signals. Concrete, rock, and packed earth have high attenuation - or reduction - values. As little as three inches of concrete can attenuate a signal by 10 dB (< 10% of its original value). The metallic thermal energy coating on glass exteriors of modern buildings can block up to 20 dB (99%) of the signal. Even interior walls can attenuate signals by 3 to 6 dB per wall as the signal moves from the edge to the interior core of a building. A table of representative attenuations is provided below.

<table>
<thead>
<tr>
<th>Material</th>
<th>800 MHz Attenuation (dB)</th>
<th>1900 MHz Attenuation (dB)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glass</td>
<td>2</td>
<td>3</td>
<td>Single-pane windows</td>
</tr>
<tr>
<td>Glass with thermal film</td>
<td>12</td>
<td>18</td>
<td>Conventional exterior windows</td>
</tr>
<tr>
<td>Glass with metal impregnation</td>
<td>18</td>
<td>25</td>
<td>Most thermally efficient</td>
</tr>
<tr>
<td>Drywall - sheetrock</td>
<td>4</td>
<td>4</td>
<td>Without special backings</td>
</tr>
<tr>
<td>Office doors</td>
<td>3</td>
<td>3</td>
<td>Wooden</td>
</tr>
<tr>
<td>Cubicles</td>
<td>1</td>
<td>2</td>
<td>Hollow fabric-covered panels</td>
</tr>
<tr>
<td>Acoustic ceiling tiles</td>
<td>2</td>
<td>3</td>
<td>(none)</td>
</tr>
<tr>
<td>Metal partitions - elevators</td>
<td>11</td>
<td>13</td>
<td>(none)</td>
</tr>
<tr>
<td>Concrete</td>
<td>20</td>
<td>20</td>
<td>(none)</td>
</tr>
</tbody>
</table>

Additional Considerations

The same RF signal engineering issues exist with next-generation 2.5/3G wireless services, but the impact on service effectiveness and quality is aggravated. New higher-speed (>56 Kbps) data and converged services will not be as tolerant of high bit error rates in the wireless link as current low-speed (9.6 kbps) voice centric services. Today's services are able to meet customer service quality expectations with BER as high as one error per thousand bits, 10^-5. New high-speed services need to achieve bit error rates that are fully three orders of magnitude (1000 times) better, 10^-8. This points to higher (better) SNR along with better signal-to-interference ratios and less multipath fading. The only way to achieve this will be through fully engineered in-building coverage solutions.

Wireless LAN (IEEE 802.11 b/g) "hot spots" face the same technical problems as 2.5/3G services, plus their deployment is unlicensed. Current product development emphasis is on WiFi continued on page 5
Wireless Coverage...
continued from page 4

network security and roaming. Both issues are crucial to continued success, and evidence suggests that problems are being solved. However, design and deployment practices still rely on a large number of access points to ensure good RF coverage within the building. They often fail to evaluate the effects of RF interference or signal spillover to undesired areas. Given the limited number of non-overlapped channels within the 802.11b/g specification, the total number of access points deployed should always be limited to those necessary for capacity - capacity should be addressed by proper antenna engineering. If WLAN is to continue to enjoy rapid commercial success, it too must be deployed consistent with good RF signal engineering practices.

Closing Thoughts

Wireless service providers have previously claimed that they could cure all their coverage ills if given free rein with tower placements. It is true that in some instances they have been unduly constrained. Notwithstanding, the real answer lies in deliberately bringing the RF signal source into the building. Bringing the source of the signal close to the user and providing a consistent blanket of coverage throughout the area eliminate most of the inherent technical signal quality issues. Operators and installers of 2-way radio systems and paging operators have long realized the need for, and benefit of, engineered in-building signal distribution solutions. Wireless service providers understand the technical issues but to date their capital expenditure budgets have been dominated by 2.5G national footprint rollouts. If 2.5/3G wireless services are adopted as integral parts of the routine conduct of enterprise activity, personal productivity, and entertainment (as hoped for by the wireless service providers), then a corresponding proportion of their capital expenditure budgets will be directed to solving in-building coverage.

"Future-proof" in-building wireless technologies and products are now available that simultaneously support the full range of voice and data services—including 2G, 2.5G, and 3G, plus WLAN, paging, and two-way radio—over a single, broadband in-building infrastructure. These new products allow shared economic paradigms better justifying the expense of fully engineering the in-building solutions for each service. Both service providers and telecommunications professionals need to be aware that these in-building wireless distribution solutions are available. The wireless status quo, "that's just the way that it works," can be changed by leveraging mutual economic benefit to bring dedicated wireless services into building environments.

James McCoy can be reached at jmccoy@innerwireless.com.

Membership Drive Targets Community Colleges

Each spring the ACUTA Membership Committee reaches out to nonmembers in an effort to expand our membership across North America. This year, we are particularly interested in increasing the number of community colleges that belong to ACUTA.

With more educational services being delivered electronically, the presence of a resident population is less significant than it used to be. ACUTA members are asked to provide services that facilitate communications of all sorts, including phones, data lines, Internet access, classroom technologies, and video services.

As Jack Canavera of St. Louis Community College told us, "ACUTA has partnered my success at St. Louis Community College, providing me with the resources and the ability to interact with my peers in the college and university environment. I consider ACUTA and its members equivalent to having an extra staff member that is available to answer questions and provide assistance to me."

Do you know someone on another campus who is not an ACUTA member? Give them a call and invite them to join. ACUTA Membership Development Manager Kellie Bowman will be happy to make that contact or follow up on your introduction. Contact Kellie at kbowman@acuta.org.
SBC's Name

In the Dec. 16, 2002 issue, The Telecom Manager’s Voice Report (VR) indicated that SBC is moving to the single brand name of SBC. It has been using regional brands like SBC Ameritech and two or three others but will now only be called SBC. The CEO explained that “Adopting a single, unified SBC brand underscores our transformation from a collection of regional companies with separate identities into a national telecommunications leader.”

The wireless service that is a joint venture between SBC and BellSouth will continue to use the name Cingular. In the January 1 issue, Telecom Reports refers to “SBC Illinois (formerly SBC Ameritech-Illinois),” so they may be using SBC with the state for locality purposes some of the time.

Hang Up and Drive!

In December, 2002, the Harvard Center for Risk Analysis, released updates of a study that was originally completed two years before. While the researchers acknowledge that their estimates are not precise, the numbers are very interesting and would lead one to consider parking the car while using a cell phone.

According to their latest study, the use of mobile phones by drivers may cause about 2,600 deaths, 330,000 moderate to critical injuries, 240,000 minor injuries, and 1.5 million instances of property damage in the U. S. each year. The risk rate in the study two years ago was about 6.4 deaths per million drivers and in the new study the rate was about double at 13. [Telecommunications Reports (TR) 12/15]

A Maryland lawmaker said he hoped the fourth time would be the charm for a bill that would ban drivers from using a handheld mobile phone while operating a vehicle. The bill will be entered in the Maryland legislature, again, early in 2003. In California a lawmaker “has prefilled legislation that would prohibit operating a vehicle while using a wireless phone, unless the phone is designed to enable ‘hands-free’ calling. The law wouldn’t apply to individuals using the wireless phone to make emergency calls.” (TR 12/15)

This next item is different but interesting. The New York City Council has approved legislation that would ban the use of mobile phones in a “place of public performance,” making it illegal to use the phones in movie theaters, concert halls, museums, and libraries. The phones could be used in emergency situations to contact the police, fire department, first aid squad, a doctor, or a 911 operator. (TR 1/1)

Comcast and Telephony

Not long ago there was a merger with the cable TV company Comcast and the AT&T Broadband segment of AT&T. It was expected that the new combined company would become a facilities-based competitor in local residential telephone markets. But it now appears unlikely that those hopes will be quickly fulfilled. At a cable TV conference in California, Comcast executives indicated that technology is a big hurdle since they are interested in deploying cable telephony over next-generation Internet Protocol (IP) systems. But the bigger hurdle appears to be financial and regulatory. They noted that "IP telephony exists in a regulatory gray area." A Comcast official indicated that some of the current thinking is that "IP telephony should be treated the same as other phone-to-phone wireline voice service, …because ‘if it walks like a duck and quacks like a duck, it’s a duck.’"
Other concerns in the regulatory arena include such issues as whether they would have to contribute to the Universal Service Fund and comply with the array of rules imposed on LECs, including those regarding customer proprietary network information and 911 service. Comcast, the largest cable TV system operator, is working on these and other issues to determine the best approach to take as they move ahead with the telephony business plan. They plan to focus on new services one at a time. In 2003 they will be focusing on video-on-demand (VOD), and telephony will come later. (TR 12/15)

**InterLATA/Intrastate Long Distance**

BellSouth has been approved to offer this service in Florida and Tennessee. They are now able to provide the service in their entire area. Qwest has been approved by the FCC to offer the service in nine of the states in its area: Colorado, Idaho, Iowa, Montana, Nebraska, North Dakota, Utah, Washington, and Wyoming. Qwest's leadership has indicated that they plan to file applications with the FCC for this service in Oregon, New Mexico, and South Dakota in January. They have also indicated that they will be filing for the other two states, Arizona and Minnesota, fairly early in 2003. (TR 1/1)

SBC has been approved to offer the in-region service in California. In addition, the Nevada Public Utilities Commission has indicated that it will support SBC Nevada’s application to the FCC to enter the in-region interLATA service. Verizon has submitted an application to the FCC for the interLATA service in the last three locations in its territory: Maryland, West Virginia, and Washington D.C. (TR 1/1)

**Do-Not-Call Lists**

As noted last month the FTC is planning to develop a nationwide do-not-call list, but from all indications they have not received any funding for the list as yet. The FTC is also requiring that telemarketers transmit caller ID information, so that consumers subscribing to caller ID services know who is calling. Telemarketers ignoring the do-not-call list are subject to fines of up to $11,000 per violation. Generally this do-not-call list plan is well supported by consumers and around Capitol Hill. One exception is the Direct Marketing Association which threatened a lawsuit. (TR 1/1)

Some state lawmakers are looking beyond the do-not-call list ideas. In several states bills have been introduced that have a different approach such as a bill that would have residents place their name on a list only if they want to be called by telemarketers. More than half the states in the nation have approved laws that limit who telemarketers can call, and the FTC is also looking at a proposal to start such a national registry. (TR 1/1)

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**Board Report January**

There was an ACUTA officer's meeting on January 11, 2003 in conjunction with the meeting in Tempe, Arizona.

The following are highlights of that meeting:

- The group discussed several issues regarding renewal of the MiCTA contract.
- The group approved a series of changes regarding target dates for several items relative to the strategic plan.
- The Board conducted an extensive review of the bylaws. A series of recommended changes will be brought to the full Board for approval.

Respectfully submitted,
John Bradley, Rensselaer Polytechnic Institute
ACUTA Secretary/Treasurer

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In June of last year, I first reported that ACUTA is working on the development of a database of college and university telephone numbers, in a cooperative effort with various carriers to eliminate or greatly reduce the number of unauthorized charges on institutions' telephone bills.

Working with an advisory committee composed of university and telecom industry representatives, we have been working since last Fall to design a database that will be hosted on the ACUTA Web site. The database will function as follows:

- ACUTA member institutions will be able to load information about their telephone numbers (including ranges of numbers).
- Companies will be able to access the database as a source of information of the telephone numbers belonging to institutions that are not eligible for change of service or billing of services without the express permission of the institution.

This project grew out of discussions between ACUTA and the telecom industry, seeking a method of reducing the incidents of unauthorized billing for monthly service plan fees, domestic and international long distance plans, dial-up Internet access, club memberships, and other miscellaneous charges that may have been ordered by students without the institution's permission.

These fees are often charged to the institution's main telephone number, with no means of determining who ordered the service or charging back the fees appropriately. Attempts to have these unauthorized charges reversed or credited back to the institution are both time-consuming and expensive.

The database will only be successful for you if your institution actually enters data on your telephone numbers. There will be no cost to institutions to participate, and both security arrangements and contractual agreements will be in place to prevent inappropriate use of the information by companies or institutions.

ACUTA will be widely publicizing the database to carriers and other billing entities to encourage them to use the database to avoid marketing or selling services to students who are not authorized to order services charged to their university telephone numbers.

This is one more example of ACUTA's efforts to maximize the return on investment for your institution's dues. If participation in this database reduces unauthorized charges on your bills even a few hundred dollars a year, it will more than pay for your dues investment in both time and money.

Watch your e-mail in early March for more information and directions on how to participate in this new member benefit.

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**CTIA Wireless 2003**

CTIA WIRELESS 2003, to be held in New Orleans, LA, March 17-19, represents the fastest growing, most dynamic segments of the telecom industry, including wireless communications, Internet, computing, and mobile data. This global event draws not only the traditional wireless audience of network providers, carriers, and manufacturers, but also brings in other industries using wireless technology—education, healthcare, and government. For more information on the CTIA WIRELESS 2003 show, visit their Web site at http://wireless2003.ctsg.com.

**BONUS:** Get a free pass to the CTIA Exposition, where more than 900 manufacturers and vendors of technology products and services will be exhibiting, when you register for the ACUTA Spring Seminars to be held in Norfolk, Virginia, April 27-30.
Welcome New Members

Institutional Members

Boston Architectural Center, Boston, MA T1 .................. www.the-bac.edu
Tony Adade, Assoc. VP, Admin. and Educational Technology, 617/262-5000

Northampton Comm. College, Bethlehem, PA T2 ...... www.northampton.edu
Scott George, Telecommunications Manager, 610/861-5301

Corporate Affiliate Members

Copper Members

Wireless, Rochester, NY .................. www.shopatwireless.com
Jennifer Bagley, 585/359-3390

Wireless, a rapidly growing leader in wireless retailing, presents the latest technologies available in wireless telecommunications, data, and networking services. We offer premier customer service and a multiple-carrier approach with custom-tailored solutions to fit individual needs.

Bluesocket, Inc., Burlington, MA ............... www.bluesocket.com
Robert Blatchford, 781/328-0888
Bluesocket’s award-winning Wireless Gateways reliably secure and manage wireless LANs. Our global network of specialized channel partners have made Bluesocket the leading provider of WLAN gateways to large organizations—corporate, education, government, & healthcare—as well as airports and hotels.

Cintech Solutions, Cincinnati, OH ............... www.cintechsolutions.com
Julie Hopkins, 513/731-6000
Cintech Solutions provides contact center technology to mid- and small-size environments such as admissions, university relations, registration, housing, and other departments that need to interact professionally and efficiently by voice, e-mail, and/or Web chat.

Cintech Solutions, Rohnert Park, CA ............... www.cintechsolutions.com
Keith Harpelund, 847/797-9366

Next Level Communications provides a unified, multi-service, multi-band platform that allows universities to enter a more profitable broadband market segment by delivering voice, high-speed data, and video entertainment to residences over existing copper wire.

Got a position to fill at your institution? Why not list it in the Job Postings section of the ACUTA Web site? This valuable portion of the site offers a list of job postings submitted by ACUTA members. Postings include title, job description, qualifications, and contact information.


ACUTA EVENTS

Spring Seminars
April 27-30, 2003
Norfolk, VA
Sheraton Norfolk Waterside

32nd Annual Conference & Exhibition
Hollywood, Florida
Westin Diplomat Resort & Spa

Fall Seminars
San Diego, CA
Hilton San Diego Resort

Winter Seminars
January 11-14, 2004
New Orleans, LA
Sheraton New Orleans