

INDUSTRY BRIEF

AT&T's Role in Colleges and Universities

AT&T has a long commitment to improving education. Our mission is to help colleges and universities acquire and effectively use:

- Telecommunications
- Internet Access
- Bandwidth
- E-Learning, including video conferencing and streaming video
- Security
- Hosting
- Managed Services
- And more

AT&T Foundation

In 2005, AT&T contributed more than \$101 million through corporate, employee and foundation giving programs to enhance education, community vitality and technology access.

The AT&T Foundation provides grants to organizations and programs that enrich quality of life, with an emphasis on improving education, advancing community development, addressing vital community needs and enhancing unique cultural assets.

The AT&T Foundation funds programs designed to:

- Enhance education by integrating new technologies and increasing learning opportunities
- Improve economic development through technology and local initiatives
- Provide vital assistance to key community-based organizations
- Support cultural institutions that make a community unique
- Advance the goals and meet the needs of diverse populations

August 7, 2006 – NCCEP Awards \$50,000 AT&T Grant to Fund Oregon Institute of Technology and Chiloquin High School Partnership

August 31, 2006 – AT&T Announces \$50,000 Donation to University of Central Florida to Continue Funding for Battlefield Simulation Technologies

To read the entire story, go to www.att.com/edu/newsroom/

The World According to Sam Smith

Sam Smith is the CIO and Vice President of Information Technology at Evergreen Polytechnic, a (fictitious) 20,000 student private four-year college in the Pacific Northwest. Like most colleges and universities, it is struggling with rising costs, increased competition for students and qualified faculty and a decentralized governance structure in which some academic departments determine their own standard for technology – and how to use that technology.

Despite these challenges, Smith is expected to continually reduce IT and telecommunications costs, deliver more and better IT and communications services to students, faculty and staff, and to provide the applications and data access that will increase productivity and increase students' satisfaction across the campus.

Smith, and others like him, are expected to spend \$6.94 billion on technology during 2006, a 35% increase compared with the prior year, according to The College Technology Review published by Market Data Retrieval.

To succeed, they need reliable, cost-effective and secure network, telecommunications and IT services to support everything from distance learning to Web application portals to wireless access to billing and registration systems. Here is how AT&T helps Smith meet the varied needs of his institution, both on and off-campus.

Satisfying Students

Today's college freshmen grew up in the information age and are used to anywhere, anytime information access. At Evergreen Polytechnic, 90% of the students have their own cell phones, 75% use text messaging most often on their mobile phones and 91% have personal computers. While as recently as 2001 a little more than 50% of libraries had wireless capability, today campus-wide wireless access is a virtual necessity.

Students expect to be able to access the Internet, their email, and important information about the campus experience when and where they need to. That can mean "distance learning" if they need to take a course from home, while they're off-campus at an internship or while they're spending a semester abroad. It means being able to register or



drop out of a course, check the status of a bill or find out if they qualified for financial aid from their notebook computer, their cell phone or from a kiosk, anywhere on campus anytime they need.

They also want to be able to get an answer to a question that spans multiple departments (say, whether a registration check has cleared at the bursar's office so they can reserve a space for a dorm at the housing office) without standing in line at multiple offices. AT&T offers services that can satisfy all these needs.

Wireless Technologies

When the weather is beautiful, students at Evergreen would rather take their study session outside to the tree-lined pond at the center of campus than to hole up in the library – especially when 68% percent of them own a laptop. Small wonder that, according to researcher Market Data Retrieval, 86% of campuses nationwide have wireless networks, nearly double the rate of only five years before.

Wireless access does far more than merely give students a chance to work on their tans. It is a necessity for a student body that is increasingly dispersed and on the run, often juggling family, work and other responsibilities along with schoolwork. Some schools find that as many as 87% of students commute to school, 80% work while attending school, and that 35% of undergraduates are adult learners who will need wireless access to accommodate their flexible schedules and their need to do schoolwork outside of a formal classroom setting. Wireless technology will continue to be a draw for new students, with some researchers estimating that nearly a third of enrollment increases will come from adult learners.

Some studies also suggest that wireless communications can improve the effectiveness of teaching and learning. For example, Shim and Shim (2001) found that faculty teaching, student learning, communication and collaboration were improved by using wireless computers.

Convenient and secure wireless systems can allow network access from anywhere on campus. These same systems can be used to deliver additional programs – for example, an online MBA program – to provide additional services to students and to increase the number of students able to enroll in the program. Wireless services and networks also reduce costs by providing a cost-effective alternative to pulling wiring through building walls. According to Swett (2002), more than 90% of public universities and 80% of private universities in the U.S. have some level of mobile wireless technologies, such as mobile wireless devices and networks. There are a growing number of schools and programs in higher education that require students to use wireless-enabled laptops in class

Among the solutions provided by AT&T to meet these needs are its WiFi, WLAN's, security and customized Cingular Wireless® higher education solutions.

Recruitment and Retention

Like the businesses lining the nearby interstate, Evergreen faces tough competition to attract qualified talent (in the form of faculty and staff) as well as customers (students). "In my world, an organization is only as good as its people," says Smith. "Technology plays a major role in our ability to attract and retain top talent, whether it's educators, students or administrators."

AT&T's robust networking capabilities give faculty the freedom to teach from remote locations and to stay in contact with their peers even while they are off campus doing research or attending conferences. It also ensures they can continue working, and stay productive regardless of where they are, and ensures their research is not slowed by connectivity issues and delays in transmitting large files such as databases or media content.

Among the network solutions provided by AT&T to meet these needs are AT&T Multiprotocol Label Switching (MPLS) IP VPNs, which are network-based solutions provisioned on the AT&T IP Network. AT&T MPLS IP VPNs are state-of-the-art IP VPN models that offer a flexible and easy path to migrate from legacy data networks to a highly-secure and scalable IP-based infrastructure.

Cost Reduction and Funding

Like many colleges and universities, Evergreen finds itself pinched between rising costs and limited revenue. In many cases, endowments are shrinking while students, faculty and staff are demanding new technology for learning, entertainment or social reasons. Academic researchers want speed and flexibility to support their collaboration efforts as data sources grow bigger and bigger.

Smith's "customers" in Evergreen's academic, administrative and research departments want to know that the network is reliable and secure, as they need access to multiple applications to speed collaboration and workflows. His customers also must be confident that none of their confidential information is compromised. To deliver these capabilities while holding down costs, Smith must ensure the college's IT infrastructure, for which he is responsible, is operating as effectively as it can.

One example of "Doing More With Less" is Sewanee, the University of the South, which was plagued by bottlenecks and network latency. Because connectivity plays a vital role in Sewanee's mission of serving students, faculty, staff, alumni and others, the school recognized the need to expand the Internet connectivity without adding costs. AT&T Managed Internet Services and VoIP allows Sewanee to use its IP data access connection for voice and Internet access. Sewanee has more than doubled its bandwidth with no increase in cost. "The value we received and benefits we get on a cost-per-unit basis have saved us money" said Todd Kelley, Sewanee's Associate Provost of IT Services.

E-Learning

In a world of more mobile, geographically dispersed and technologically-savvy students, e-learning is a requirement, not a luxury. This new breed of student has moved learning beyond the four walls of a classroom, and appreciates the ability to bring the world of education to them, on their schedule. Smith, like his peers at colleges and universities around the world, needs the right systems in place to make e-learning viable.

E-Learning serves the MBA student who takes online classes from home, the student with the broken leg who needs to access the streaming video of the lectures he missed while in the hospital, and the teacher who creates a videoconference with an expert who can both lecture his students and then answer questions from them.

Among the AT&T services that help provide e-learning to institutions of higher learning are:

- AccorAT&T PremierSERVSM Consulting Services
- AT&T Voice Dynamic Network Applications (Voice DNA)
- AT&T Security and Business Continuity
- AT&T Video Conference Service
- Cingular Wireless[®]

Bandwidth

Across Evergreen's sprawling campus, Smith constantly hears faculty, staff and students demand more bandwidth. Researchers need higher-capacity networks to share ever-increasing amounts of data. Faculty and students need these networks to develop and share more video-centric applications, and to accommodate ever-rising amounts of email and the "anywhere, anytime" access to administrative applications needed to increase productivity and improve the customer (i.e., student) experience.

A higher bandwidth network solution can address traffic congestion, network latency and network deficiencies. AT&T can help with a broad portfolio of next-generation products that can meet any school's speed and cost requirements. These include DSL, Ethernet Switched Service, Managed Internet Service as well as T1 and AT&T Ultravailable[®] Managed OptEring Service, a fully managed optical Ethernet service that supports any-to-any LAN/MAN interconnections.

Higher bandwidth was a goal of Oakland Community College. As the largest community college in Michigan, "We needed a quick and more cost-effective way to handle the growing data flow across our locations," said Clarence E. Brantley, vice chancellor of administrative services. AT&T provided Opt-E-MAN[®], a public switched Ethernet solution that will connect the college's five campuses. "The solutions provided by AT&T will equip us with the tools needed to expand our bandwidth and increase productivity among faculty and staff to better serve our students," said Andrew R. Hillberry, chief information officer, Oakland Community College.

Disaster Recovery

Living in the Pacific Northwest, Smith is well aware of the sudden damage that earthquakes or volcanic eruptions can do to his IT infrastructure. And as a college CIO, he knows the damage that more mundane but unpredictable events such as fire, flood or even an errant backhoe can cause to his IT infrastructure.

Despite such threats, faculty need access to their student records and to their research, administrators need to be able to access donor records and students expect to always be able to get access to their transcripts and other irreplaceable student records. The loss of vital networks, applications or data can destroy years of research work; interrupt important experiments; drive away disgruntled students and faculty; destroy productivity and significantly harm a school's reputation.

For those reasons, Smith has put in place a detailed disaster recovery plan, which relies in part on services from AT&T such as:

- Managed Risk Services to provide an objective appraisal of a school's business environment, including a Business Impact Analysis (BIA) and Risk Assessment.
- Business Continuity (BC) and Disaster Recovery (DR) Consulting to provide continuity and recovery strategies for critical business processes that focus on planning, testing, training and certification.
- Business Continuity Program Management to provide program management consultation, expertise and methodology.
- Enterprise Recovery Service (ERS) utilizing AT&T's proven integration expertise for networking, computing, data mirroring and information technology (IT) infrastructures. Its well-established presence includes ubiquitous metro-area networking availability, data-center and recovery facilities in major metro markets. AT&T offers in-house expertise that will support a school's most complex global computing and networking environments. AT&T ERS designs, architects, engineers and implements the right business continuity/disaster recovery solutions for its clients.
- Managed Storage Services alleviate capacity bottlenecks and maintain continuous network performance with AT&T storage options. AT&T's highly skilled team can design, install, test and manage storage solutions that satisfy institutional needs for backup, recovery or replication.
- Enterprise Hosting Services offer a rich portfolio of flexible hosting solutions to help ensure uninterrupted access and improved performance of critical business data and applications. AT&T Enterprise Hosting Services deliver a fully integrated application and networking infrastructure to handle anything from the simplest to the most demanding hosting requirements, simplifying and streamlining the integration of components from separate vendors.

Security

Every time Smith reads a new story about a security breach at a university, he breathes a sigh of relief it wasn't Evergreen that made the headlines. The disclosure, loss or theft of student, alumni and donor information at other schools has damaged the schools' reputations, exposed the students, alumni and donors to possible identity theft and the schools themselves to possible legal action.

Universities face challenges other organizations don't when it comes to securing data. Each year, they face the turnover of at least a quarter of their customers, or students. Campuses are, by design, highly open environments with visitors to faculty, friends of students and part-time or adjunct faculty using the campus network at unpredictable times. Then there is the tendency of students to experiment with all the latest Web-based technology, such as file-sharing software, which can be used to unwittingly – or deliberately – introduce virus and other threats into the campus network.

Like most schools, Smith requires that computers operated by students, faculty and staff run firewalls and antivirus software. He also employs network-based intrusion protection systems, application firewalls, and other defenses.

He also has help from AT&T services such as:

- Security and Business Continuity services which utilize AT&T's depth of knowledge, experience, process, platforms and investments to assist schools in securing their enterprise networking environment. These services include proactive 24x7 monitoring and management, real-time reporting and visibility into security performance and violations, as well as access to skilled security and business continuity professionals, proven processes and leading-edge platforms to extend school's security and business continuity resources
- AT&T MPLS Private Network Transport Services, state-of-the-art IP-based VPN (virtual private networks) which provide multiple classes of service, Web-based performance monitoring, and a flexible, robust network architecture for schools' future needs.

Sometimes, security and increased bandwidth can go hand in hand. Louisiana State University in Shreveport rates student access to technology as a top priority. As LSUS continues to grow, the school's technological needs will also increase, creating the need for flexible, adaptable technology solutions. LSUS called in AT&T to recommend improvements to the campus LAN, increasing the core network bandwidth from 100FX to Gigabit speed and adding a firewall and intrusion detection services.

Among other changes, AT&T segregated the Computer Science department's network from the campus network, which will allow teachers and students to reconfigure that network for teaching or research purposes without endangering the performance or security of the main campus network.

"The products, services, and expertise the AT&T team has provided to the LSU Shreveport network will help us continue to offer our students and faculty the technology they expect from us within a secure server environment," said Scott Hardwick, assistant director, Computing Services, LSUS.

Conclusion

AT&T offers a world class IP/MPLS based network that handles voice, video, collaboration and data all on one secure, reliable network, as well as robust WiFi and wireless solutions. With these capabilities, AT&T can help educational institutions create a scalable, reliable and secure network infrastructure that deliver:

- Enhanced productivity, management and ROI, driven by unified command and control
- Mission-critical applications that are accessible, anytime and anywhere
- Management of hybrid environments to eliminate the need for "fork lift upgrades" and to assure timely deployment of network and applications resources
- Proactive monitoring, predictive intrusion management, and real-time mitigation provide a "worry-free" network and application experience for students, faculty and staff

Awards

Cisco Systems Inc. named AT&T Inc. the first service provider in North America to receive the Cisco Powered Network Quality of Service Certification for metropolitan Ethernet services.

San Antonio-based AT&T earned the certification for its AT&T OPT-E-MAN® managed metropolitan optical transport service. The designation means that AT&T meets the highest levels of recommended network service as defined by Cisco.

About AT&T

AT&T is the largest telecommunications company in the United States and one of the largest in the world. It is the global company that will set the standard for a new era of integrated communications and entertainment services.

AT&T serves millions of customers around the globe and delivers an unsurpassed portfolio of traditional and IP-based voice, broadband Internet, data transport, wireless and video services. It also offers online and print directory publishing and advertising.

"AT&T is a responsible, engaged corporate citizen. We are committed to helping make the communities where we live and work to be as strong and vibrant as they can be. We will continue to deliver on the promise of good corporate citizenship."

— Edward E. Whitacre Jr. Chairman and Chief Executive officer AT&T.

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