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Jobs, Well Done

What we can learn from Steve Jobs, in life and in death.

For anyone doubting the power of consumer IT, the reaction to the death of Steve Jobs should have served as a wake-up call. The worldwide outpouring of tributes, devotion—even grief—was remarkable, proving beyond any doubt that users' attitudes toward their tech devices have become, in many ways, intensely personal.

At the same time, I thought that the news coverage of his death completely missed the point. The media acted as if Jobs alone was responsible for the remarkable products that Apple has launched in its 35-year history. Certainly, there's no doubt that Jobs was a gifted visionary, who revolutionized—maybe even created—the consumer tech industry. But based on the media narrative, you would have thought that Apple's approximately 46,000 employees spent most of their time getting him coffee and doughnuts.

No, the true genius of Steve Jobs lay in his ability to create and lead a huge organization that could develop and sell these products. His core contributions were a non-negotiable demand for excellence and a crystal-clear vision. In an interview with NPR's *Fresh Air*, Jobs once said that he wanted to bring a liberal arts sensibility to a previously all-geek industry. That vision lay at the heart of every Apple product and what made the company such a massive success. Jobs humanized computing.

But he never claimed to have invented the mouse or any of the other cool Apple features. Those ideas came from elsewhere or from within the ranks of Apple employees. In the same interview with NPR, Jobs made his executive philosophy very clear: Whereas most companies hire people so that they can tell those people what to do, he said, Apple hires people so they can tell Apple what to do. A corporate hierarchy is necessary for all kinds of reasons, but Jobs realized that good ideas know no rank. They're simply good ideas. And by creating a corporate culture that allowed these ideas to bubble to the surface, he positioned Apple to succeed beyond its wildest dreams.

His approach can—and should—serve as an example to CIOs on campuses nationwide. As Jobs did, it is their responsibility to establish a strong, compelling vision, and to act as uncompromising guardians of that vision. And, like Jobs, they should demand nothing less than excellence—of themselves, their staff, and their vendors. Beyond that, though, their role is to cultivate a culture of creativity and freedom among their staff. It's an approach that's good for employees, good for IT, and, ultimately, it's good for the institution.

It will be very interesting to see how Apple fares in the wake of Jobs' death. A WWSD (What Would Steve Do) approach isn't going to cut it. Instead, the company has to trust in its vision, trust in its employees, and never lower the bar. Because that is Jobs' finest legacy. **CT**

—Andrew Barbour, Executive Editor
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6 Tips for Innovating With Video Collaboration Tools
Video collaboration tools stretch the boundaries of the higher ed campus, enhancing learning and instruction, improving productivity, and fostering better communication.

Conquer iPad and Tablet Connectivity in a Snap
Technologists reveal the traditional wireless roadblocks that schools face and how to address campus network performance issues brought on by the multitude of iPads and tablets storming the higher ed campus.

The Moodle "Top 10": The Benefits of an Enterprise Open Source E-Learning Platform
Moodle has become a mainstream alternative to the legacy LMS of the past. As more institutions make the change to an enterprise, fully supported platform, how are they leveraging Moodle to satisfy a wide range of learning requirements and support their academic mission?

Trending Articles on *CT*

- **4 Web 2.0 Technologies to Inspire Students**
  campustechnology.com/1111_web20
- **For-Profit Schools: They Get IT**
  campustechnology.com/0911_forprofits
- **Harrisburg U Suffers Withdrawal of Social Media**
  campustechnology.com/1111_harrisburg

Campus Focus

Taking College IT Out of the Hardware Business

Babson College (MA) has overhauled its back-end computing operations with a $1.7 million "data center in a box." The move is part of a long-term vision to bring greater agility to IT on campus.

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Events Calendar

Nov 17 - 19
Association for Career and Technical Education
2011 ACTE Annual Convention and Career Tech Expo
acteonline.org/convention.aspx
St. Louis

Nov 28 - 29
The Software & Information Industry Association
SIIA Ed Tech Business Forum
siia.net/etbf/2011
New York

Jan 24 - 26
School & College Building Expo
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No Digital Natives

*CT's October feature, "Will the Real Digital Native Please Stand Up?" (*campustechnology.com/articles/2011/10/01/will-the-real-digital-native-please-stand-up.aspx*), re-evaluated the idea that there is a definable generation of tech-tuned students.*

I consider myself fluent in internet, ICT, OERs, etc., and my young university students need as much guidance as my students 30 years ago in learning just how to use 21st century tools to *learn*. Yes, they are connected and communicating more spontaneously than my generation, but they do not enter school savvy in the techniques of "learning with IT." I think Prensky's terms can be used as descriptors, but age is not relevant.

Susan Bainbridge

Comment posted on *campustechnology.com*

QR Savvy

*Also in the October issue, "12 Cool-laborative Web 2.0 Tools" (*campustechnology.com/articles/2011/10/01/12-coolaborative-web-2.0-tools.aspx*) highlighted an array of collaborative tools for the classroom.*

Another great use for QR codes is in lab manuals. I have made several YouTube video demonstrations for chemistry labs for my classes. In the printed lab manual I include a QR code to link to each video. The students can watch the videos before or during the lab to make sure that they are clear on the procedure/expected outcome.

Chris

Comment posted on *campustechnology.com*

A Seat at the Table

*The September issue editorial, "Is IT Digging Its Own Grave?" (*campustechnology.com/articles/2011/09/01/is-it-digging-its-own-grave.aspx*), discussed the evolution of IT's strategic role on campus.*

Many higher ed leaders have such little understanding of technology it's shocking they would not know their IT leadership. Any higher ed leader that claims to understand how to properly employ technology in his environment is doomed to fail. If those leaders have not invited their IT leadership to the table, *they* have failed. A CEO/CFO or higher ed executive is not equipped to make technology-outsourcing decisions effectively. I say, for those IT leaders that are struggling to get a seat at the table, find another institution.

Anonymous

Comment posted on *campustechnology.com*

It is irresponsible to twist some CIOs' message out of context to sound like higher ed IT is doomed. Quite the contrary, the higher ed institutions that have embraced technology and used it effectively have thrived even in this economically challenging time. Technology leadership is ever more important to help institutions enhance their services while cutting down the costs. We have done it and you are wrong.

Anonymous

Comment posted on *campustechnology.com*

Profit and Loss

*Our September cover story, "For-Profit Schools: They Get IT" (*campustechnology.com/articles/2011/09/01/for-profit-schools-they-get-it.aspx*), looked at what traditional institutions can learn from these controversial schools' advanced use of technology.*

How many brick-and-mortar graduates are asking, "Would you like fries with that?" if they even have a job at all! Online schools provide an alternative form of education for single parents, working adults, and many others who choose not to go the "traditional" route.

A Virtual Teacher

Comment posted on *campustechnology.com*

After working two years at a for-profit, I can tell you this: all the bad things you've heard? They're true. Yes, for-profits may buy some technology and the teachers may (sometimes) be more responsive, but trust me, the degrees for 90 percent of graduates aren't worth the paper they're written on. And let's not forget that nearly 75 percent of students who enroll won't graduate. What good is all that IT going to do them?

Anonymous

Comment posted on *campustechnology.com*

My state college professors took days to respond to my e-mails and phone calls, hiding behind their tenure and never taking a real interest in students' lives. They were so busy

trying to protect their "right" to teach any way they saw fit that they completely lost sight of the mission and vision for which they claimed to want to teach. At for-profit schools, teachers who treat students this way would never keep their jobs. There are actual standards for teaching, and that is what scares nonprofit faculty and leads to such harsh criticism. It is so much easier to point the finger at others than to look in the mirror.

Jane Doe

Boston

Comment posted on *campustechnology.com*

I'm a graduate student at a for-profit, and a long-time employee of a public community college. After completing two undergrad degrees at nonprofits, I found the responsiveness and good customer service of the for-profits extremely refreshing. My current for-profit never lured me or chased me down, so while the depiction of these schools may be true of some, it definitely isn't true in my case. I have had a wonderful graduate school experience, never had to wait in line or wait long for a return call, and my support team checks in with me on a regular basis.

Alanna

Comment posted on *campustechnology.com*

Sure, these diploma churners can spend on technology because they charge outrageous tuition that has been shown to provide little benefit to the students. They spend on flashy technology to lure students into a boatload of debt and a piece of paper that may be near worthless. And that is exactly what their technology purchases are—recruiting tools. Any educational benefits are just a side effect.

S Jackson

Comment posted on *campustechnology.com*

E-mail us at *editors@campustechnology.com*, or join the conversation on the web at *campustechnology.com*. Letters are edited for length and clarity.

SPECIAL ADVERTISING SECTION

CAMPUS TECHNOLOGY Focus

Tegrity Campus: The Online Class with the In-Class Experience

At Northwest Florida State College in the heart of the Florida panhandle, Tegrity Campus lecture capture is making the face-to-face class experience available to online students across a geographical area that stretches from the Gulf of Mexico to the Alabama state line to Korea and Iraq, where active duty military students attend classes via the web. Tegrity has been a key factor in improving student performance and retention, particularly for NWF State College's diverse and mobile student population. And student response has been remarkably positive: "Tegrity makes distance learning even more personal than a classroom setting," "If it weren't for the Tegrity videos I wouldn't have passed," and "It's the online class with the in-class experience."

Simulated Face-to-Face Time

In 2008, when math professor Chris Mizell began teaching distance learning classes, he wanted to provide his online students with the same level of instruction his face-to-face students received. He wanted something more than PowerPoint and whatever instructional materials came with the textbook. "The college had recently just adopted Tegrity, so I tried it in my College Algebra and Intermediate Algebra classes and found it to be very powerful," says Mizell. "Since then I've used Tegrity to capture lectures in every class I teach."

Mizell uses his tablet PC and a webcam with built in microphone to record his classroom lectures. Tegrity syncs them together automatically, so that online students see his image in the upper corner of the screen as he works though math problems, giving students a full, virtual view of the classroom, imitating true face time.

Student Retention and Satisfaction

With many NWF State College students employed in the hospitality industry, serving in the military, or living over 50 miles from campus, retention has been a challenge. Students often used to drop out of class when work shifts changed, new deployments came into effect, or illness struck. In classes such as Intermediate Algebra, requiring mastery of material covered early on as the curriculum builds, students generally withdrew or fell hopelessly behind if they missed just a few class periods. Lecture capture has changed that: "Now they don't have to miss anything," notes Mizell. "Tegrity is helping them stay in school."

Students appreciate that Tegrity allows them to learn any time anywhere, review material as often as needed, and replay classes on their computers or mobile devices. "When you learn at a slower pace, being able to pause and rewind makes it very helpful to grasp the info. And it actually makes learning more personal than a classroom setting," says Lisa T., a distance learning College Algebra student.

Multiple Applications

Tegrity is being used in multiple ways at NWF State College. "My face-to-face students love it too, because they can watch a class again if they haven't been able to keep up with the notes," enthuses Mizell. And both groups of students use Tegrity videos from previous semesters to prepare for class.

An easy-to-use, web-based or cloud-based system that requires minimal hardware and software installation, Tegrity also provides a secure online testing platform that allows instructors to create customized, confidential test assessments. In addition, NWF State College is using the service to create tutorials for college-wide systems, post recordings of special events, and conduct departmental training.

Cost Savings

Like most educational institutions in today's budget climate, NWF State College must stretch limited funds while still helping students succeed. One benefit of the Tegrity implementation is that student demand for tutoring services has been reduced. "Although lecture capture is not intended to replace traditional campus learning centers, it has certainly been used to answer many questions that would otherwise have been posed to paid campus tutors—or gone unanswered," says Mizell.

Achievement

And students who completed his 2009-2010 College Algebra class with access to Tegrity were more successful in the next class, Precalculus Algebra, than students who followed the same sequence before Tegrity was available, during the 2007-2008 school year: with a jump in the success rate from 68.2 percent to 74.1 percent.

"I believe that these increases are largely due to the unlimited access students have had to College Algebra since the implementation of lecture capture with Tegrity," says Mizell.

In addition, NWF State College has reported a higher number of graduates with improved grades across the board where Tegrity is in use.

"I'm confident going forward that Tegrity use will expand on our campus and continue to produce measurably excellent results for my students and those of my colleagues," says Mizell.

Campus+Industry

TECHNOLOGY HAPPENINGS IN HIGHER EDUCATION

NEWS

ONLINE PROCTORING. **Oregon State University** is using proctoring service ProctorU to cater specifically to students who live far from campus or can't take tests during standard university hours. Test takers need a reliable internet connection with a minimum 768 kbps download speed, a browser with Adobe Flash Player installed, and a web camera and microphone connected to the computer. The ProctorU service, which costs between $20 and $25 per test, relies on the virtual presence of a human proctor who interacts with the test taker in real time via streaming video and audio. Additionally, the student shares his desktop with the proctor. The exam session begins only after the student's identity is checked by the proctor and the work area is examined through the webcam. Read more at *campustechnology.com/articles/2011/08/05/oregon-state-turns-to-webcam-for-proctoring-tests.aspx*.

MOBILE TECH SKILLS. Launched in July, **Abilene Christian University**'s (TX) K-12 Digital Learning Institute has completed its first summer session. The program, funded by AT&T, trains K-12 teachers in using mobile technology to incorporate project-based learning in their classrooms. The institute emphasizes technology usage to develop higher-order thinking skills, innovation, communication, collaboration, research fluency, and digital citizenship.

COACHING ADULT LEARNERS. **Central Michigan University** has partnered with student coaching service InsideTrack to help support online learners in its bachelor's and master's degree programs. Through one-on-one, executive-style mentoring sessions, InsideTrack coaches will work with online adult learners to engage and prepare them for academic success.

READING ON FACEBOOK. Kno, a digital textbook reader startup, has released its collection of more than 100,000 e-textbooks to Facebook, allowing its campus customers to buy and read e-books through the social networking service. With the new Facebook option, students can study alone or with friends online and can post questions from their e-text to their Facebook news feed. Kno has also announced an updated version of its Apple iPad e-reader application, introducing new Journal and Quiz Me features. Journal allows users to transfer images, highlights, sticky notes, text, and other media from an e-textbook into a single digital notebook for review. Quiz Me hides captions from diagrams captured from e-textbooks and lets users test themselves with on-the-fly multiple-choice quizzes. Read more at *campustechnology.com/articles/2011/08/10/kno-makes-digital-texts-accessible-through-facebook.aspx*.

Kno has updated its iPad e-reader application, introducing new Journal and Quiz Me features.

MANAGING STUDENTS IN THE CLOUD. **Hebrew Theological College** (IL) recently implemented StuTrax, a cloud-based student information system from Enrollment Rx, to improve data sharing across its campuses. The college holds more than 4,500 current and historical records from students at two campuses in Chicago and Skokie, IL, a year-abroad program in Israel, as well as a growing online division. StuTrax will seamlessly track student information across multiple locations and improve communication with students, prospects, advisers, and administrators, all without the financial and IT burden of traditional campus-based solutions.

E-TEXT MANAGEMENT. **DeVry University** (multiple locations) has selected Ingram Content Group's VitalSource e-textbook platform to distribute all textbooks used by the school's online students. VitalSource will be integrated with the university's eCollege learning management system and will allow students and faculty to access content online, via download, or on a mobile device.

NEW CLOUD SERVICES. Advanced networking consortium Internet2 has announced partnerships with HP, SHI International, and Box to deliver new Internet2 NET+ cloud computing and other services to member universities. The partnerships add HP Cloud service and Box service to the Internet2 NET+ suite of "above the network" services, which also includes The Commons (IP-based collaboration technologies), middleware tools, and InCommon (secure and privacy-preserving trust fabric).

VIRTUAL DESKTOPS. **Middle Tennessee State University** is rolling out Citrix XenDesktop to deliver full Windows virtual desktops and applications as an on-demand service for students, faculty, and staff. The university expects to save more than 35 percent in desktop computing costs by centralizing management of desktops and applications as well as reducing the need to refresh PC hardware. Campus users will be able to access any Windows, web, or software-as-a-service application at any time, whether on or off campus. **CT**

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Stepping Into the Breach

Data breaches are inevitable. How effectively a school responds may be a more telling indicator of its preparedness.

IF YOU THINK your institution is immune to a security breach, perhaps you should have a chat with Brian Rust at the **University of Wisconsin-Madison**. When asked about data breaches on his campus, the communications director in the Office of the Chief Information Officer answers with the hint of a sigh: "Let me tell you about the most recent one."

This particular breach involved the Wiscard, a student ID that doubles as a debit card. "There were records kept on a server that wasn't as secure as it should have been," Rust explains. But he's quick to point out UW-Madison is no more or less vulnerable than any other university. In fact, he believes that almost every school has suffered a breach or an exposure at some point.

It's a view shared by Matt Morton, director of information services at **Buena Vista University** (IA), which suffered a security breach in 2010 (the case is currently working its way through the court system). Morton feels that breaches are not only inevitable but will occur more than once.

Obviously, schools should do whatever they can to secure their networks, but Rust and Morton have learned that institutions must also have a plan in place to deal with the aftermath of a breach. Critical components of a plan include alerting potential victims that their information may have been compromised, explaining the situation to the public, and internal steps for identifying and analyzing the damage and re-establishing a secure system.

Alison Seiffer

The first step, though, is to come clean. The knee-jerk reaction for many administrators is to keep news of the breach quiet. That's a mistake. "If you let the media control the message, it is going to be a painful experience," says Jeremiah Grossman, chief technology officer with WhiteHat Security. "It has to be all about honesty and transparency to make sure there remains a level of trust in the institution."

One strategy is to give the communications department a prepared script about the breach. "Have a three-sentence statement that allows people to summarize what happened," says Cathy Hubbs, chief information security officer at **American University** (DC). This can keep reporters at bay and let the investigators do their job.

Preserving the Crime Scene

In the aftermath of a breach, one of the biggest mistakes that organizations make is trying to quickly shut down any malicious activity. "This can be disastrous," says Geoff Webb, director of Credant Technologies, a security company. "While the natural response of senior management may be to shut everything down, you must

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resist this pressure. If this is an accidental breach, then you will need to understand what happened and how. If this is a malicious breach, then it is imperative that the systems involved remain active—any attempt to cut off the attackers will only alert them and may destroy any evidence on the breached systems. If it does appear to be a malicious breach, you should call in a forensic team and law enforcement before you change anything."

It's important to conduct the forensics as rapidly as possible, because the clock is ticking. "As soon as we discover the significance of an exposure or breach, we have 45 days to notify the people whose sensitive information may have been exposed," says Rust, referring to a time limit imposed by Wisconsin law.

A disaster response team should include different segments of the campus population, including legal, the executive administration, communications, and IT security.

Notification is not an easy task. Records may not have up-to-date physical or e-mail addresses; some of the people may even be dead. "You may need to turn to outside vendors to help find those who may have compromised records," notes Rust.

UW-Madison, for example, contracted an outside firm and set up a phone bank. The people answering the phones were given a very tight script that answered basic questions. If callers had more in-depth questions, their calls were elevated to someone within the university system.

Having a website dedicated to the problem is also valuable. The website should include basic information about what happened, what the school might be offering (like free credit monitoring for a prescribed amount of time), and an FAQ page that is regularly updated with any new questions that come in. The help center should also include the website address as part of any recorded phone message.

Calling in the Cavalry

Outside security vendors can be a lifesaver. When Morton discovered that Buena Vista had been victimized last year, he quickly realized he needed outside help. "In these situations, there is more work than there are people to do it," explains Morton. "Even more so in a college environment."

Because it's their business, outside vendors have learned what it takes to clean up and move on after a breach. In addition, they often understand the complex regulatory issues and how they affect the notification process.

"A third-party service can help colleges through the compliance issues," notes Rick Shaw, president and CEO of Awareity, which provides post-breach services to schools. "We can also help by sending out letters or setting up call centers."

While outside vendors can carry a lot of the water, universities shouldn't see them as a replacement for a solid recovery plan. And no matter how good that plan might be, it will be useless if it ends up gathering dust on a shelf.

For Hubbs at AU, it's vital to practice in anticipation of the inevitable. "We have to be able to work together to get through the process," she explains. "We stage events and do dry runs so, if the real moment comes, we aren't running around as if our hair is on fire."

In Hubbs' opinion, the response team should include different segments of the campus population, including legal, the executive administration, communications, and IT security. This group should meet periodically to review the response plan, as well as keep abreast of new compliance and regulation issues.

It may also be worth identifying who is responsible for what from a security standpoint, because you don't want the recovery process degenerating into a spat about who's to blame and who should foot the bill. In the UW-Madison breach, for example, there was some question about who was going to pay for the remediation, which certainly wasn't cheap. In the end, the provost allowed the security team to bill the department that had been breached. "It may be a lesson to be more aware of security issues," says Rust.

Ultimately, there is a window of opportunity to respond to a breach. It just happens that that this window comes *before* the breach ever occurs. Drawing up a clear incident-response plan with well-defined responsibilities can save your organization millions of dollars in costs and a lot of embarrassing publicity. **CT**

The Full Monty?

In data security parlance, there is a subtle—but important—difference between a breach and an exposure. An exposure is an incident where someone obtained access to your data but you aren't sure if anyone actually looked at it. In a breach, you *know* someone looked at it.

Sue Marquette Poremba *is a Central Pennsylvania-based writer who specializes in security and technology.*

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Regaining Your Faculties

While the LMS has become a ubiquitous feature of higher ed, doubts persist over how much—and how effectively—faculty use the technology. *CT* looks at five steps needed to engage faculty.

THE LEARNING MANAGEMENT SYSTEM MARKET is worth nearly a billion dollars in the United States alone. Nearly every campus has one or more systems, along with IT staff, training programs, and infrastructure to support it. Indeed, for many institutions, the LMS is the keystone of their technology-based learning strategy, whether that means blended learning, distance learning, or just more convenient classroom administration.

But just how many institutions are actually doing a good job incorporating the LMS into their teaching structures? Recent research suggests that LMS adoption in higher education may not be going as smoothly or as consistently as many would hope.

A study of LMS usage at **Cabrini College** (PA), a small residential liberal arts college, illustrates the difficulties faced by many colleges. At first glance, the findings are encouraging. Based on an analysis of LMS log files for every class on campus, overall use of the school's Blackboard LMS increased over the 2½-year study period: In 2010, about 44 percent of all undergraduate students had some course content posted on the LMS, up from 32 percent in 2007.

Upon closer analysis, though, the increase in usage rings a bit hollow. While the average number of logins per class per semester increased from 7.2 to 10.6 per student, the level of utilization remains low, suggesting that students have little reason to access the system in many classes. Indeed, on average, students logged into the LMS one or more times per week in only about 25 percent of the courses.

A likely reason behind the low student login rate is faculty resistance to using the LMS in the first place. What growth the study did reveal over 2½ years was a result of high levels of use by newer, generally young faculty members—there was little change in usage among existing faculty. Faculty who were on campus in 2007 used the LMS at similar levels in 2010. In many cases, the extent of LMS use went no further than posting the syllabus or other static content online.

IN 2010, ON AVERAGE, students at Cabrini College logged into the LMS one or more times per week in only about 25 percent of courses.

Cabrini is not alone. Schools nationwide are struggling with ways to increase not only faculty adoption rates, but also meaningful use of the LMS as an instructional tool. In fact, if the LMS is ever to reach its full potential, significant changes need to be made in how schools, vendors, and regulators approach the task at hand. The key to success lies in five areas:

1) Faculty Involvement

Faculty buy-in is critical to the success of any program, and the best way to secure it is to involve faculty from the beginning. Consider the case of **Louisiana State University**, a large

state school with about 36,000 students. "We used to support two different platforms—Blackboard and a homegrown product called Semester Book," recalls Sheri Thompson, LSU's IT communications and planning officer. "And under 40 percent of faculty used the platforms."

When LSU realized it could not continue to support both platforms, it opened up the selection process for identifying a replacement. "We implemented a process where faculty were deeply involved in the LMS choice, developing the RFP, evaluating responses, and ultimately choosing the Moodle platform," notes Thompson. Today, decisions regarding Moodle development are routed through the Moodle Development Advisory Committee, which is largely composed of faculty and includes student representatives.

With faculty playing a significant role, adoption has increased significantly. "As of the fall 2010 semester, 66.1 percent of faculty were teaching at least one course using Moodle," says Thompson. "On our campus, we have faculty who have blended classrooms, and others who don't. Decisions about technology are primarily faculty driven."

2) Course Design and Faculty Training

Providing adequate support and faculty training is vitally important. "Staff and administrators' lack of knowledge and experience with the technologies or emerging technologies creates a barrier," claims Julie Meyer, instructional designer for **Penn State Great Valley School of Graduate Professional Studies**. Meyer's role is to work with faculty to figure out how technology can best contribute to the classroom, given the faculty member's style and level of comfort with technology. She believes that both students and faculty need to be properly trained in the use of instructional technology before its full benefits can be realized.

The need for proper support and guidance is echoed by Ronald Legon, executive director of Quality Matters, a faculty-centered, peer-review process designed to certify the quality of online courses and online components. "We believe that guidelines, training, discussion, and feedback are necessary components in assisting the faculty member with no prior online teaching experience to make the transition to effective blended learning," he says.

3) Student Awareness

Like faculty, students need to be included and fully prepared to use the technology. "New-student orientation needs to show students the role and value of the course management system, and equip them with the basic skills they will need to use the technology," states Meyer, whose school uses Angel, now Blackboard. "If a class does include a blended portion, it should be clearly stated in the course schedule, so students will understand the expectation."

4) Resolving Regulatory Issues

The great hope for the LMS, of course, is that it can become an integral part of truly blended courses, made up of face-to-face and online components. Yet regulations governing blended learning may actually be slowing its adoption in traditional classrooms. State departments of education regulate and monitor student seat time, and provide guidance about when online experiences can (and cannot) count as classroom hours. While many campuses have submitted complete online programs with detailed implementation plans to state and regional accrediting bodies, individual faculty members who wish to substitute online experience for face-to-face hours must learn the regulations and carefully craft assignments themselves.

This can be challenging, since the regulations can be both detailed and unclear. Online equivalencies depend heavily on the degree to which other students are actively involved online.

For example, for accreditation purposes in Pennsylvania and the Middle States Commission on Higher Education, a discussion post "with careful reading of all other learner postings" equals 30 minutes of instructional time. In contrast, a discussion post "without careful reading of all other learner postings'" is considered homework and does not count as instructional time.

In much the same way that the **Temple University** (PA) Media Education Lab has created resources and programs to help teachers understand the proper use of the "fair use" provisions of copyright law, colleges need to do a better job of openly discussing the options for compliance with blended learning.

5) Leadership

"It is essential to have a clear direction and rationale that are communicated repeatedly and supported in action by senior administration (i.e., not simply rhetoric)," notes Randy Garrison, coauthor of *Blended Learning in Higher Education* (Jossey-Bass, 2007). "Empty rhetoric is quickly recognized and is a morale destroyer.

"The key is to focus on teaching and learning approaches—not the technology. The rationale has to be engaged, deep, and meaningful learning." While Garrison clearly believes blended learning is an "inevitable evolution and ultimately the norm," he is also adamant that the transition will be longer and harder in the absence of solid leadership. **CT**

***Eric Malm**, Ph.D., is assistant professor of economics and business administration at Cabrini College. **Joanna F. DeFranco**, Ph.D., is assistant professor of software engineering at **Penn State** Great Valley School of Graduate Professional Studies.*

toni fuhrman

Mobile Strategy, or Moving Target?

In developing a mobile strategy, schools must navigate a technology field that is evolving at tremendous speed. *CT* looks at the key questions facing colleges and universities.

Ryan Snook

AT TIMES, IT FEELS as if mobile computing is evolving at the speed of thought. A never-ending stream of new products is being snapped up by consumers who can't seem to get enough. "In the past two years, smartphones have become essential to every aspect of the higher education experience," declares Aaron Wasserman, director of Blackboard Mobile.

Research backs him up. According to Bob Diveley, executive director of operations and infrastructure for **Columbus State University** (GA), more than 70 percent of CSU students prefer to use their cell phones as their primary way to access and receive university information.

With students increasingly reliant on mobile technology, how can your institution determine the best strategy for meeting their needs? And, in such a rapidly evolving environment, how do you stay on track in terms of development, resource allocation, and priorities? *CT* looks at some of the key decisions facing colleges and universities nationwide.

1) Mobile Website, App, or Both?

"Mobile apps have advantages," says Maharsh Desai, programmer analyst for the Auxiliary Enterprises department at **Western Michigan University**. "They're much faster than a mobile website and provide a much better user experience. However, I would recommend developing a mobile website." Desai's reasons include:

- Platform independence: "They can be accessed from any smartphone browser, whereas mobile apps

SPECIAL ADVERTISING SECTION

CAMPUS TECHNOLOGY Focus

Pamlico CC Relies on the Cloud for Portal, LMS

As a small college in a rural, sparsely populated county in North Carolina, Pamlico Community College (PCC) needs to marshal its resources carefully. The smallest of 58 community colleges the state, with one main campus and four satellite locations, PCC has just 65 fulltime faculty and an IT staff of four to serve a student body of more than 900 continuing education students. Understanding that, the two-year college has long worked with a vendor who offers a cloud-based portal and learning management solution (LMS) that has enabled the institution to deliver high quality service to their students, faculty, and staff even with limited resources.

Pamlico is technologically advanced for its rural location and heritage. Beginning in 2002, administrators realized that they needed a professional, enterprise-class portal system that would give each student an e-mail account, automate routine tasks, track student activity, and act as the primary information source for the campus community The school selected CampusCruiser Portal an easy-to-implement portal management product from CampusCruiser, a company that offers a suite of affordable, scalable cloud and software-as-a-service solutions.

Pamlico was impressed with the wealth of features and with CampusCruiser's customer service right out of the gate. Even better, CampusCruiser Portal was easily implemented alongside Datatel Colleague, the student information system that Pamlico was also moving to at the time. This one-two punch allowed students to use the portal to access Datatel-stored information such as financial aid or class registration, as well CampusCruiser tools.

With the highly successful launch of Portal under its belt, PCC continued to maintain a tight relationship with CampusCruiser, working with the company to development its LMS product. Pamlico rolled out CampusCruiser LMS in 2004, becoming one of the original implementers in North Carolina. CampusCruiser's software-as-a-service LMS has helped the college organize and maintain its 200-plus current course offerings—online, face-to-face, and hybrid. In all three types of courses, instructors use the LMS for communicating with students, making assignments, using the grade book, posting notes, and other tasks.

Both Portal and LMS have allowed the college to provide a high level of services and support to students and faculty, even with limited staff.

Both Portal and LMS have allowed the college to provide a high level of services and support to students and faculty, even with limited staff. "Because we're so small and so rural, the portal is a real information source," confirms distance learning coordinator Kathleen Mayo. Now in use for seven years, the portal continues to serve as a central repository for an ever-growing amount of information for students, faculty, and staff. "We keep it updated," Mayo says, "and everyone knows to look there for information." That includes weather closings—this is a school on the Atlantic coast, after all—as well as a range of other information. With the portal focused on the needs of current Pamlico students and faculty, the college's web site can be geared more toward prospective students, and to the public.

Just how important has the hosted aspect of CampusCruiser software been to the college? Pamlico runs a server farm onsite with nearly all of its other mission-critical software, including Datatel Colleague, so the staff is clearly comfortable with hosting its own software systems. However, having the portal and LMS solution managed by the vendor offsite has been a bonus from the start. "[Off-site hosting] was very important at the beginning and has become more so," says Scott Frazer, director of computer services, as the college deals with increasingly complex issues such as new state-mandated security requirements for data privacy and security. Meeting those sorts of regulations is made easier with CampusCruiser handling the details, especially in a time of tight budgets. "As times have gotten harder, we haven't had to deal directly" with those sorts of resource-consuming requirements, Frazer explains. "There's no way we could have done as much as we have without the [CampusCruiser] partnership."

Looking ahead, Mayo says that one of her goals is to assist faculty in using CampusCruiser LMS to offer multimedia presentations to online students—just one of the features offered by CampusCruiser's products. With hands-on support, software updates, and security all handled by CampusCruiser, faculty and IT staff can focus on the business of educating students.

should be developed separately for different platforms."

- Ease of use: "A mobile website is easily available and convenient. Students don't have to go through the hassle of downloading the app on their phones."
- Cost efficiency: "Developing a mobile website is much more cost efficient than developing multiple mobile apps for different platforms."
- Ease of maintenance: "The mobile website can be easily updated and maintained."

Geoffrey Shoultz, a senior programmer in University Information and Technology Services at CSU, recommends that schools develop both a mobile website and a native app. But he suggests starting off with a mobile website. "If you're just getting started in the app world, you may leave out some potential features from your app," he explains. "Creating an app for each platform will also take additional time and resources. With a mobile website, all platforms are supported, which can give you more time to release the native apps."

And when you do develop those apps, ideally they should fulfill functions that the mobile-optimized website does not. "The development of the app should not simply seek to duplicate what already exists in terms of web resources," notes Maya Georgieva, assistant director of the Center for Innovation in Teaching and Learning at **New York University**'s Stern School of Business. "Rather, it should make services/data easier to access and interact with. Mobile websites allow students to access information and key services on their devices, while apps focus on performing unique tasks more efficiently." (NYU Stern won a 2011 Campus Technology Innovators award for its development of an iPad app for digital course materials.)

2) In-House, Outsource, or Customize?

The first choice of many IT managers is to develop a mobile solution in-house, if possible. "If the mobile website/application is based on the university's existing system, it makes much more sense to develop it in-house," notes WMU's Desai. "Overall, in-house development will always give you an edge."

That was the route chosen by the **University of Wisconsin-Madison** in developing its campus app, known as Mobile UW. The app was the work of a team of developers drawn from various campus departments. UW used the same approach to develop sub-apps, including a directory, map, campus safety, news, events, athletics, and buses. "For now, we are moving forward using in-house talent, including a project manager," says Hideko Mills, manager of IT research infrastructure.

At the same time, Mills recognizes that in-house development is something of a luxury, particularly in these grim economic times. "We recognize that other higher education institutions may not have in-house resources to pursue our strategy," she says.

RESOURCES

For links to the schools, vendors, and organizations mentioned in this article, go to *campustechnology.com/1111_mobile*

It was lack of resources—rather than will—that prompted CSU to look for a customizable third-party solution, rather than build an app from scratch. "We spent time looking into what we could do with Google Apps, because we had just made the switch over [to Google Apps Education Edition]," says Shoultz, citing CSU's lack of in-house experience in building websites and apps.

In 2009, CSU launched an Android-based app that allows students to access their financial information, required documents, and various schedules. Despite the success of the customized Google app, Shoultz does not gainsay the value of in-house development. "If you have the time and ability," he advises, "I say go for it."

It's a big "if," however. "If they're looking at how to do this from scratch, it can be pretty daunting," say John Lewis, chief software architect of the consulting group Unicon. Lewis is on the board of directors of Jasig, a consortium of higher education institutions and businesses that backs open source initiatives.

Most recently, the group has thrown its support behind the development of uMobile, a free, open source platform that allows universities to use a single code base to create native apps for Android and iOS devices, plus browser-based content for smartphones. Version 1.0 of the platform was released in September.

3) Cross-Platform Development

Don't be tempted to pursue a strategy that is dependent on a single mobile platform. "Considering the fierce competition and current market share for different mobile platforms, cross-platform development is a necessity," advises WMU's Desai.

Shoultz agrees, "but I think there are only two—maybe three—platforms to focus on." He feels that iPhone and Android are necessary platforms, with BlackBerry "a maybe." For its part, UW chose to support iOS and Android, and is currently one of several universities working with Jasig on the uMobile platform.

Every school obviously faces its own development and resource challenges; ultimately, though, any mobile strategy must be inclusive to be successful. "While pilot projects can start by utilizing a single device or platform," says NYU Stern's Georgieva, "it is important to follow up on these efforts by expanding access to the entire student body."

4) Cost Calculations

Cost is another critical factor in deciding how and where

to develop a mobile product. Before UW made its decision to build its apps in-house, Mills and her team researched vendor options. According to Mills, they were "far too costly and not sustainable with recurring license fees."

But going to a third-party developer can make a lot of sense, especially if the company already provides your school with enterprise solutions that can be integrated into the mobile product. Also, time considerations sometimes make it the wisest course of action. "If it's a very time-sensitive project and is readily available in the market, it makes more sense to purchase it and customize it, rather than develop it from the ground up," says WMU's Desai.

When analyzing the costs of in-house development, it's important to factor in not only the initial development but maintenance and upgrades, too. "Most of the cost occurs in development and feature enhancement of the platforms," notes Mills. "Once in production, our maintenance costs are relatively low. We pay for the hosting and maintenance of two virtual servers, and help desk service."

By building CSU's app on the Google Apps platform, Shoultz not only kept costs down, but he's actually using it as a springboard to generate revenues. "Our original app was developed by me and one student assistant," says Shoultz. "Now we have two full-time people and are looking for part-time help to develop more mobile apps. We also develop apps for other companies and universities, which, in turn, helps to fund our staff."

5) Security

Security is a very real issue, and security experts expect 2011-2012 to be the first year when mobile devices come under heavy attack from data thieves.

"Individuals have a different sense of security and often open themselves to potential security risks," says NYU's Georgieva. "Apps can open doors to a variety of personal user information. Not all smartphones or users password-protect their devices, and some devices allow passwords to be stored, which could easily enable other individuals to access personal information."

In rolling out a mobile strategy, many institutions have taken a baby-steps approach. At UW-Madison, for example, version 1.0 of Mobile UW used only data sources that were currently in production and accessible to the public.

"We expect subsequent versions to address authentication issues surrounding accessing private information, such as student courses and grades," explains Mills. "The Mobile UW project team worked with the Office of Campus Information Security for a security risk analysis review prior to placing the platforms into production." **CT**

__Toni Fuhrman__ is a writer and creative consultant based in Los Angeles.

Do Netbooks Have Net Worth?

With the release of the iPad and other tablets, netbooks were consigned to the scrap heap of history, right? Not so fast.

PUSHING A NETBOOK PROGRAM on a college campus these days can feel a bit like selling abacuses in the math department. Sure, they work, but isn't the technology a bit dated? Besides, the staid laptop computing experience offered by the typical netbook no longer seems to be enough. Users like the cool factor of smartphones and tablet computing.

Those sentiments are certainly reflected in industry projections. IDC's quarterly "PC Tracker" forecast, published in July, noted a contraction in the "mini notebook" market that hit netbook leaders Acer and Asus especially hard. Indeed, both manufacturers are now scrambling to adjust their inventory mix to address the explosive growth in tablet sales. Nevertheless, the 2011 sales forecast for netbooks is more than 34 million units worldwide, according to analyst firm Canalys. That's not chump change.

So what could netbooks possibly offer higher ed that an alternative couldn't do better? Try this: addressing basic computing needs and providing access to the web at a price that's hard to beat. As long as wireless internet access is available, no extra service fees are required. Plus, netbooks have a larger screen than a smartphone, and a keyboard that's more familiar to most users than that of a tablet.

Courtesy of Lenovo

These were the lures that attracted **Bellevue College** (WA), which recently acquired 500 netbooks. Kristen Connely, who directs the campus bookstore, chose Lenovo IdeaPad S Series netbooks for a new student rental program that's being rolled out this fall.

The two-year program is made possible by $783,000 in grant money from the Department of Education's Fund for the Improvement of Postsecondary Education. The funds will underwrite the program's startup costs, including the purchase of digital course materials, software, netbooks, and other equipment, as well as the hiring of students to provide IT assistance.

Following a successful pilot in spring 2011, the bookstore will rent netbooks to students for $35 per term. "I wanted something that was portable, that had access to documentation for students to do their homework, and also internet access," says Connely. One of the typical complaints about netbooks—that they're underpowered and don't have much memory—is almost irrelevant in this context, she adds.

"A lot of the homework assignments from publishers involve interactive websites," she explains. "Netbooks may not have a lot of storage on them, but with internet access they don't need it." With a clear knowledge of what she wanted, Connely chose netbooks as the most affordable option.

Top Features of Top Models

Affordability is key. Of the 10 best-selling models in Amazon's netbook category, nine list for under $300. The Lenovo IdeaPad that Connely bought cost

continued on page 23

1105 MEDIA

EDUCATION SECURITY

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A SPECIAL SECTION TO *SECURITY PRODUCTS*, *T.H.E. JOURNAL* AND *CAMPUS TECHNOLOGY*

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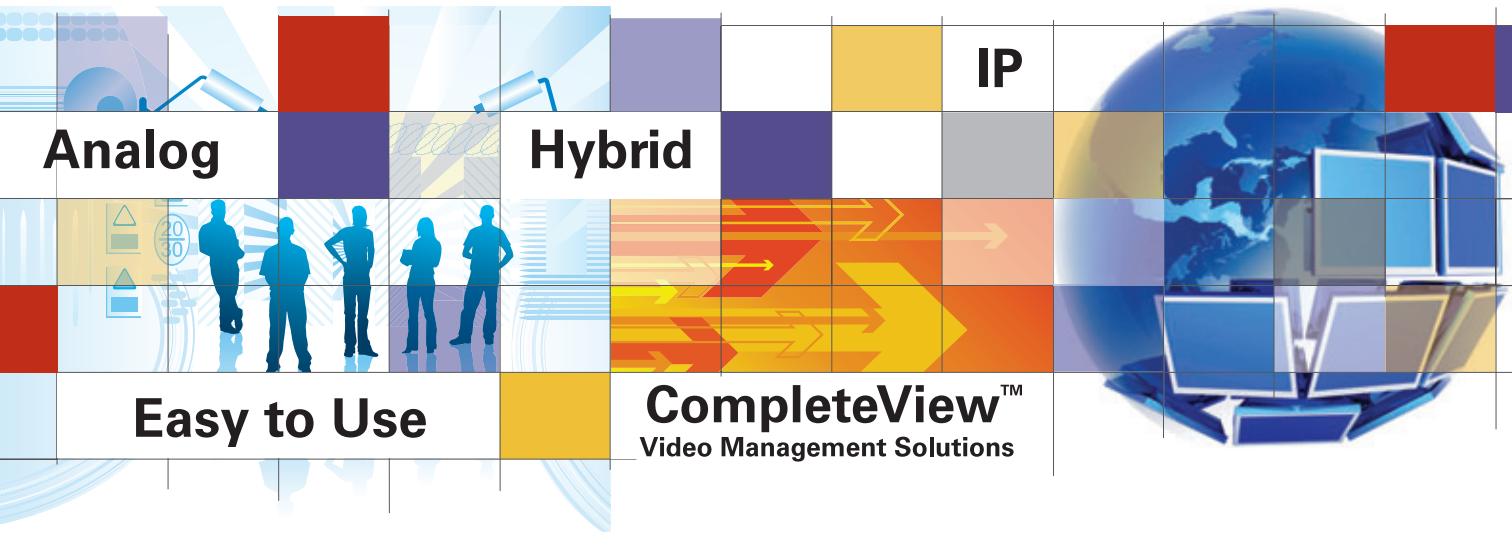

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COMMENTARY

BULLIES RUIN THE SCHOOL EXPERIENCE

By Ralph C. Jensen

I WAS PICKED ON DURING MY YOUNGER SCHOOL DAYS. I'M NOT COMPLAINING; THAT'S JUST THE WAY THINGS WERE BACK THEN. THE BIGGER KIDS PICKED ON THE YOUNGER STUDENTS, AND THE TRICKLE-DOWN EFFECT LED TO A FEW BULLIES IN THE SCHOOL.

Don't get me wrong; there were plenty of good kids and students, but there were bullies who had to take out their aggression on the 98-pound weaklings. I fell into that category.

Let's get one thing straight right now: Bullying is wrong.

Bullying goes against everything that schools stand for. A school should be a safe haven filled with opportunities to learn and grow; it is a place for children to expand upon their perceived talents and abilities, a place to be nurtured and treasured.

Today's grown-ups are rightfully concerned about the state of education in the United States. Among their concerns are funding levels for schools and whether standards on which those schools are judged truly reflect students' performance.

When discussing the social climate at schools, adults would do better to ask for input from the students about bullying and other types of harassment. Why? Because one-third of students between the ages of 12 and 18 reports being bullied at school. This includes verbal harassment in the form of ridicule or rumors.

The National School Board Association (NSBA) has launched a campaign that facilitates face-to-face meetings between students and school board members. In fact, the Department of Education has awarded $38.8 million to states to measure school safety and intervene in schools with the greatest need. NSBA is encouraging school board members to meet with groups of students and ask point-blank questions, such as: "Do you feel safe at school?" and "Do you feel respected by teachers and staff?"

"I don't think we can solve [the problem] without the students," said NSBA President Mary Broderick.

Students can improve the dialog about improving a school's climate, and if teachers, administrators or even parents would listen, students would be the source of a wealth of data. It also is a great opportunity for educators to show students they are listening and are aware of and acting on the problems of bullying.

A great example of a school addressing bullying and cyber-bullying is Liberty Common High School in Fort Collins, Colo. Its policy is clear, and if the policy is not enforced, parents can pull their children from the school.

Schools that successfully thwart bullying have common characteristics and are worthy of further attention by policymakers and school officials. For starters, schools should offer an ambitious, well-ordered curriculum that challenges all students. Behavioral expectations should be clear, concise and plainly stated. All students should be fully occupied with schoolwork, homework and edifying extracurricular activities.

Instructors should be competent and skilled in pushing all students to higher levels of academic achievement. Parents should be active and engaged in the school.

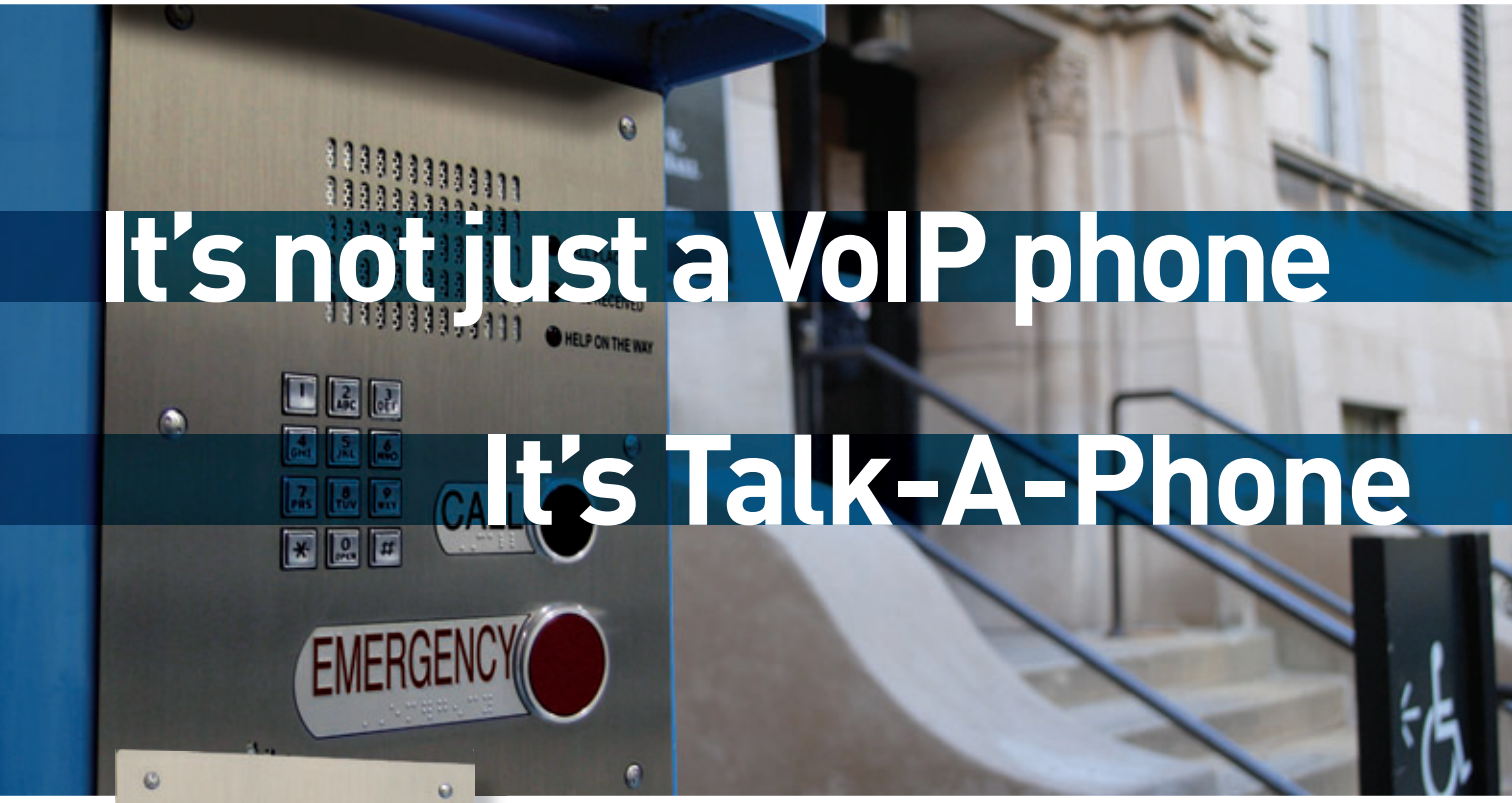
Most importantly, parents who find these standards are not being maintained by their students' school should be free to move their children to schools that do.

"When I began my work as education commissioner in Rhode Island, I pledged that every decision I would make would be in the best interest of the students," said Deborah A. Gist, who still retains that position. "To make sure we are working in the best interest of students, it is essential to meet with students and to hear their voices and their concerns."

Keith Welner, professor of education at the University of Colorado in Boulder, said students should be asked to speak about not just whether their schools have anti-bullying and anti-harassment policies, but also whether those policies are known and enforced.

Bullying undermines the safe learning environment that students need to achieve their full potential. Reforming public education in the sensible direction of having school choice, parental empowerment and truly professional (non-union) educators is an imperative first step toward relieving the bullying affliction. By stingily maintaining its monopoly status (at the expense of parenting), government bureaucrats and their political allies are themselves being bullies.

"And, like all scoundrels, these bullies deserve the firmest resistance from Americans who still value freedom," said Bob Schaffer, chairman of the Colorado State Board of Education, and former U.S. congressman.



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FEATURE

PAINTING A SECURE UNIVERSITY EDUCATION

City by the Bay even more secure with university's enhanced security system

By Mary E. Wilbur

THE ACADEMY OF ART UNIVERSITY IN SAN FRANCISCO HAS EVOLVED FROM A LOFT STUDIO FOR A HANDFUL OF STUDENTS IN 1929 TO BECOME THE COUNTRY'S LARGEST PRIVATE SCHOOL FOR ART AND DESIGN. THE FAMILY-RUN INSTITUTION UNDERSTANDS THAT PARENTS WANT TO BE ASSURED THAT THEIR CHILDREN ARE IN A SAFE AND SECURE ENVIRONMENT.

Academy President Elisa Stephens, the granddaughter of the school's founder, Richard S. Stephens, has committed the academy to an ever-expanding curriculum in order to stay current with new technologies and trends.

CLOSED CAMPUS, INTERACTIVE RELATIONSHIP

AAU leaders speak to the parents and students about safety in an urban campus environment, where they have access to the design, graphic, Web, photographic, architectural and environmental beauty of San Francisco. While the campus itself is a closed environment, the academy nurtures an interactive relationship with the surrounding community.

It's not the same campus that grandfather Stephens established, and it likely has different concerns. Richard Stephens was a fine-arts painter and creative director of *Sunset Magazine*. He and his wife, Clara, opened their new school in a rented loft at 215 Kearney St. As

enrollment grew, so did the distinguished faculty, which comprised art and design professionals. By 1933, the curriculum had expanded to include fashion illustration, and three years later, a fine art department was established.

Today, more than 17,000 students call the academy home, a place where they can earn bachelor's and master's degrees and participate in certificate programs or continuing art education courses with more than 30 areas of academic emphasis.

Similar to their counterparts of yesteryear, students today have access control throughout all the facilities, where there are state-of-the-art design facilities, galleries and collections.

SECURITY ON FOOT

Roving patrols that provide security are as much a part of the academy's philosophy as its commitment to being "student-centric," meaning staff members will do what they need to do to benefit the students. On a day-to-day basis, the academy's security team makes the decisions that will affect positive outcomes for student security. This includes video surveillance, campus safety hosts at buildings and desk guards in buildings where students must be buzzed-in to enter.

"Video cameras are our best crime-fighting tool," said Mike Patricca, head of AAU security. "Video has solved the majority of problems with teams of thieves stealing projectors and students' computers. After we got hit a few times, we got video to help us solve the problem as evidence, catching them in the act. The thieves were arrested, then came back a second time and are now doing time thanks to video surveillance."

What brought it all together was implementing a video management solution from Salient Systems of Austin, Texas. Security officials and AAU staff alike knew the old legacy system had to be replaced, so when a DVR went down, the transition from analog to digital began to take shape.

NOT AN OVERNIGHT PROCESS

Upgrading the security systems didn't take place overnight. The academy lists 29 properties as part of the university. Last year, it added 30 cameras in the Del Monte Cannery area of San Francisco. Security officials selected ACTi megapixel cameras, running all of them on Salient Systems' video management software.

"The amazing thing about this school is how they take care of their students," said Dave Chritton, partner and owner of MicroBiz, a San Francisco integrator. "When it's time for the students to go home, the Academy wants to make sure they make it there safely. AAU manages a 24-hours communication center and has issued access control badges for the students."

The Cannery area at Fisherman's Wharf is AAU's latest contribution to its campus and the city. Academy officials selected CompleteView video surveillance software as a force multiplier, which monitors and manages every camera in the network. The software allows the cameras to capture activities that officers may not see, and it is available and accessible 24/7.

The Cannery landowners were excited to see the academy move in. They instituted a revitalization plan for the area and added a security system that not only protects their own interests but also benefits the surrounding business owners.

CompleteView is proactive, with live video available to provide real-time information for crisis management. Officers can know what is happening before they enter a building or facility, resulting in reduced risk in parking areas, cafeterias, lecture halls, large social gatherings and athletic events.

"This is an IP-based system with a large server and recorder that

sends images back to the communications center," Chritton said. "AAU is the largest real estate owner in the San Francisco area. They want excellent service, and security is a top priority."

Security is critical on every level at the academy. The basic level provides cameras and surveillance for the safety of staff and students and includes on-premise guards and alarms for many properties. The facility also employs a card access system and a high-tech IP backbone developed by AAU's IT group. The academy has 20,000 active cardholders. Some 18,000 students access the campus.

"This really is about the students and their safety. When the academy does something, the San Francisco community at large benefits," said Susan Toland, strategic initiative executive, Office of the President. "By keeping our students safe and secure, we are able to graduate talented and educated students who enhance the talent pool by adding to the design and art economy as an emerging business sector."

Because AAU has deployed such an extensive camera and software system, San Francisco police officers have come to rely on the academy's video of the perimeter and the properties the academy uses. In one instance, a couple on vacation were walking on an adjacent property, and the woman was shot and killed. An important part of the incident was captured by campus video surveillance, and the video assisted San Francisco police in prosecuting the killers.

The Salient solution has been used throughout the academy and has been tested at the Jerrold Bus Center, where it tracks busses and monitors the perimeter of the bus barn. It also helps record the detail of license plates, and vehicles' entry and exit times. Other selling points of the solution were search and playback, and monitoring screens in real time.

"We needed to replace the legacy system," Patricca said. "The current video management system provides a higher-resolution image from the megapixel cameras, both inside the facility and on the exterior of the buildings."

Mary E. Wilbur *is the director of marketing at Salient Systems Corp. She can be reached at* mary.wilbur@salientsys.com.

FEATURE

CLEARING THE HALLS

School district gets a clearer view with multi-megapixel cameras

By Wendi Burke

THE EDWARDSVILLE COMMUNITY UNIT SCHOOL DISTRICT, WHICH ENCOMPASSES 185 SQUARE MILES OF THE SUBURBAN ST. LOUIS TOWN OF EDWARDSVILLE, ILL., IS ONE OF THE OLDEST SCHOOL DISTRICTS IN THE STATE. IT SERVES 7,500 K-12 STUDENTS AT 14 SCHOOLS.

Typically, the district has been relatively advanced in applying security technology. Starting in 2000, it installed analog cameras and VCRs for a video surveillance program. That technology soon proved insufficient for its needs, though, and in 2003 the district switched out the VCRs for DVRs and upgraded the analog camera technology, using encoders to connect existing analog cameras to the district's expanding IP network.

"As new buildings came online we wanted to take advantage of and utilize the new technology that was available," said Director of Technology Bill Miener. By 2007, Edwardsville was ready to switch out its analog cameras and encoders and move to a completely IP-based video surveillance system. The district's technology wish list included increased resolution, clarity and PoE capabilities available only from top-of-the-line megapixel IP cameras.

So Miener and his team started test-driving cameras from several different manufacturers, temporarily installing the hardware at several different campuses and evaluating the performance on their laptops.

"After testing over several weeks, we concluded that we liked what the IQeye cameras offered, and they were affordable for the budget we had available at that time," Meiner said.

PROTECTION INSIDE AND OUT

The district started with 48 IQeye cameras. Now it has 471, two-thirds of which are indoor cameras. IQeye Sentinels are installed in the outdoor locations, and Alliance domes are installed indoors; resolutions for all the cameras range from 3 MP to 5 MP. Milestone open-platform software for IP network-based video surveillance manages the camera data.

Miener said the district's old PTZ cameras started wearing out right about when the warranties expired. Rather than replace them with new PTZs, Edwardsville schools now install IQeye Sentinels in a special housing, each covering a 60-degree field of view. "The Sentinels—we love them," Miener said. The district has also installed 24 Sentinels in its large sports complex in addition to the units in its school building.

During the school day, a security officer in each school monitors only local cameras, focusing on entrances/exits and doing a video "tour" throughout the building. Video is stored for seven to 10 days so security staff can review any incidents that may have transpired. In addition to monitoring at each school, at least three Edwardsville senior staff members can access all camera views whenever they need them.

The cameras act as a deterrent, as well, because the clear view means staff members can identify perpetrators and hold them accountable.

"We don't have a lot of problems anymore because the troublemakers know about the cameras; it's a very effective deterrent," Miener said.

On top of all that, the switch to IP saved the school district money. It no longer has to pay for the maintenance on broken PTZs, and the smaller number of cameras translated into budget savings.

"In the past with our analog cameras, if we were more than 15 to 20 feet from the camera, identifying someone was hard," Miener said. "Once we went with multi-megapixel technology, it's been a leap in capability. At 60 feet, we see exactly what happened. These cameras are three, four times more effective. That was amazing for us, and cost-effective."

***Wendi Burke** is director of Global Marketing Communications at IQinVision. She can be reached at* wendi.burke@iqeye.com.

UNIVERSITY CENTRALIZES SURVEILLANCE WITH MEGAPIXEL IP SYSTEM

Florida's University of Miami, a private research university with more than 15,000 students, has installed more than 350 IQinVision megapixel cameras throughout its main campus in order to create a safer environment for students, staff and visitors.

The university had maintained video surveillance for a number of years, but as Jose Ruano, executive director of IT Security, explains, "We had so many legacy analog systems, and we were looking to bring it all together into a unified system that we could manage in a centralized manner."

University police were responsible for monitoring video and investigating any incidents, but as Ruano points out, this was made difficult by the many disparate systems.

The university knew it needed to upgrade to IP. "It was much more economical to upgrade our cameras and run them over the IP network than laying coax," says Steve Weatherly, senior security engineer.

The university has more than 400 cameras installed and counting, and approximately 90 percent of them are IQeye HD megapixel cameras. These cameras are installed wherever image quality is critical for identification purposes: in parking lots and areas that typically have a high density of students. The university police also conduct a regular analysis to identify crime areas. They then install a camera to address the pressing needs the study identifies.

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FEATURE

LIFTING THE COMMUNITY

Sound system allows instructors to teach students with enthusiasm

By Bill Taylor

THE RON CLARK ACADEMY IS ARGUABLY ONE OF THE MOST RENOWNED MIDDLE SCHOOLS (GRADES SIX THROUGH EIGHT) IN AMERICA. CARVED OUT OF AN ABANDONED 100-YEAR-OLD FACTORY IN THE HEART OF ONE OF ATLANTA'S MOST DISTRESSED NEIGHBORHOODS, IT STRIVES TO "HELP LIFT UP THE COMMUNITY AS WELL AS THE KIDS," CO-FOUNDER RON CLARK SAID.

The academy also is extremely focused on its mission—teaching.

Teaching students: Drawn from Atlanta's 13 metro districts, students are carefully selected to maintain a balanced enrollment of one-third transfers who excelled in their previous school, one-third average achievers and one-third students whose prior academic experience was marked by bad grades and/or behavioral problems.

Teaching teachers: More than 3,000 teachers from the United States and as many as 44 other countries annually visit the academy to gather insight for their classrooms, attend workshops on teaching techniques and lesson planning, and learn about the latest technology and its proper place in the overall educational equation.

Teaching the world: Additional thousands of educators download lessons, view instructional videos, take part in live chats and discussions, and access a host of other resources from the academy-sponsored, nonprofit (all proceeds go to fund academy scholarships) Great American Teachers' Club distance-learning website.

Even still, the Ron Clark Academy faces the same safety, security and communication challenges as every other school. Its directors turned to Panasonic's Classroom Audio and Security Alert System to meet those challenges, provide a secure environment for teachers and students, and enable teachers to communicate effectively despite the miserable acoustics inherent in a 19th-century factory building with "legacy" exposed pipes and metal ductwork. Deployed in August 2008, the classroom audio component of the system features wearable pendant-style teacher microphones and wireless handheld student microphones. The microphones connect to a remote, multi-channel amplifier/receiver and ceiling-mounted speakers via infrared technology. Teachers who wish to archive a lesson, demonstration or presentation use it daily.

"We looked at a number of systems, and Panasonic's classroom audio was the best," Clark said. "The sound was crisp, it was clear, it was easy to use, and it projected throughout the room beautifully."

Using SAFARI Montage-powered ViewPath video/audio management software, teachers can initiate recording and use a desktop mouse or laptop touchpad to easily pan, zoom, tilt and rotate a Pana-

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sonic PTZ network camera mounted in the ceiling. Administrators can also use the system for such tasks as remote teacher evaluation and student behavior monitoring.

"Instead of having to schedule someone to come in with a camera, tripod and recording device, you just press a button and you're on-screen," said Kim Bearden, Academy co-founder, executive director and language arts instructor. She noted that the recorded lessons are used for teacher self-evaluations, staff discussions about teaching techniques, and creating content for *GreatAmericanTeachers.com.*

"At this point, we've barely touched the benefits this technology offers our student body and other schools as well," she said.

Clark is not shy about admitting that "we're very different here. . . .We're innovative and creative, we get really high test scores, and we have the opposite of a truancy problem: Kids come to school sick. We can't get them to stay home.

"We want to share that innovation and creativity," he added. "We want people all over the country and around the globe to have the option of watching our world-class teachers building and maintaining a culture where students would rather be in class than at home with iPods and video games. The Panasonic System is a wonderful product for helping us achieve that goal while, at the same time, keeping us comfortable and safe."

It also was, according to Bearden, a quantum leap from "loud talking" and "going home hoarse" every day.

"I can whisper something from any spot in a huge classroom and it sounds like I'm whispering directly into the ear of every student," said Bearden, who, like Clark, is a Disney Teacher of the Year Award winner.

"I've been teaching for 24 years, and I will never teach without this system again. It's amazing how having the microphone changes things. All of a sudden you can start using nuances and vocal inflections to add drama and emotion to the story you're telling.

"I used to feel like I was yelling all the time and still many of the students misheard me. I'd look at three sets of notes and see three wildly different versions of what I'd said. Now I don't find that nearly as often."

Both Bearden and Clark also give the system's student microphones high marks.

"A lot of our students are soft-spoken," Clark said. "Give them a microphone, and they become loud and clear. I think it gives them confidence, which, in turn, makes them more articulate. They become more excited, more passionate about what they're saying."

"When one of the students takes the microphone from another, there's a transference of power," Bearden said. "The student with the microphone knows the class is going to hear what he or she says, that the comments are going to seem more important. They also know they can't get away with mumbling when they don't know the answer. It makes it harder to be invisible."

The system's benefits extend beyond general classroom management, though.

"The system's major benefit is offering teachers an additional layer of security. . . . It makes us feel confident and safe in our environment," Clark said. "I know that if anything were to happen—God forbid—we would be alerted immediately. I know that the incident is going to be recorded and captured. I know that we have a definite, rock-solid system in place to help us deal with whatever."

To alert administrators, trigger the microphone and cameras to begin recording and streaming data to a monitoring station, and send e-mail blasts to first-responders, "all I have to do is reach up and very discreetly press a button on the pendant," Bearden said. "I don't have to run somewhere or draw attention to myself."

She adds that another "brilliant feature" is the system's ability to trigger location-specific alarms and audio/video feeds whether she is in her own classroom, another teacher's classroom, or a hallway or other common area.

Bill Taylor *is the president of Panasonic System Networks Company of America.*

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FEATURE

A TRAIL OF BLUE LIGHTS

Student, visitor safety is paramount at FSU

By Bob Shanes

FLORIDA STATE UNIVERSITY HAS A RICH HISTORY OF PROVIDING QUALITY EDUCATION TO A DIVERSE POPULATION. WITH ITS IMPRESSIVE BREADTH OF GRADUATE, PROFESSIONAL AND UNDERGRADUATE PROGRAMS, FSU IS DEMANDING AND INTELLECTUALLY STIMULATING, YET IT PROVIDES A WARM AND CARING ENVIRONMENT FOR STUDENTS AND FACULTY.

Student and guest safety is paramount on FSU campuses so the university can create an inviting environment and continue to attract top talent. One of the university's major public safety initiatives is the Blue Light Trail, which now constitutes more than 400 strategically placed blue light towers equipped with emergency phones and blue lights.

The towers are designed to give passersby a sense of security by providing a reliable two-way communication link with university police at the push of a button. The technology is not new, but it has nevertheless proven invaluable on more than one occasion. The number of towers continues to grow as the campus's safety needs grow.

FSU has had a variety of blue light emergency phones from other manufacturers installed on some of its campuses, but this time it turned to Talk-A-Phone to provide the installations. Having multiple vendors on the site allowed FSU to test the blue light emergency phones thoroughly before settling on one vendor. Talk-A-Phone not only satisfied the university's technical requirements and reliability tests, but it also proved that aesthetics should not come at extra cost.

Universities implementing the towers have the choice of a wide variety of color and lettering styles. FSU chose its theme color, Chilean Red, and opted for gold lettering on all four sides to reflect the university's identity. The emergency phones were also customized to fit the needs of the university's campuses.

"When we wanted a phone that would work with current vendors' towers, they provided it and promised continued support for the phones no matter how old they are," said Larry Downing, a network specialist at the university. "When we needed a delay timer in the unit so we could do some special alert messaging interface with the Red Alert, they designed one."

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Another distinctive feature of Talk-A-Phone's emergency phones is their ability to fit into a majority of existing mounting accessories from other manufacturers, making an upgrade as easy as a simple swap of the phone.

BLUE LIGHT SAFETY, EVEN IN A THUNDERSTORM

Thunderstorms and lightning are a grave concern for the FSU community. Located in Tallahassee, Fla., the university's 15 colleges are in the heart of a thunderstorm-riddled region, leading the nation in an average lightning density per square foot. Needless to say, having a reliable emergency communication link is significant from both a legal and public relations perspective.

In the interest of safety for all facility staff, students and visitors, FSU developed a comprehensive emergency phone program. As part of this program, a full-time employee tests and repairs the blue light emergency phones in case of lightning outages.

"It is the belief of the emergency phone technician that the Talk-A-Phone units are more robust, particularly in the realm of surviving lightning strikes," said Colleen Thomas of FSU's telecommunications office. "While all phones are fitted with the same external surge protection, the units we have now are more often spared or at least are repairable when a surge is sufficient to get through the protection device."

Although the university endeavored to protect the emergency phones with heavy-duty surge suppressors, severe lightning was still a major concern. Talk-A-Phone's ability to stand up to storm conditions played an important role in FSU's selection of emergency phones moving forward.

"With lightning being so prevalent in this area and having been a major factor in phone replacements in the past, we have experienced cost savings in this regard as well," Thomas said.

INGENUITY, LUMINOUS EFFICACY AND SAFETY

Satisfying unique environmental demands in various corners of the world is something that needs to be taken into account when installing outdoor security apparatuses. Possible lightning strikes are just part of that.

"When you have roughly 30,000 amps (and) 100 million volts making a direct contact with electronics, chances it will survive are minimal," said Talk-A-Phone Chairman Samuel Shanes. "However, we have acquired a great deal of experience dealing with lightning and other environmental issues in our 75-year history of making products in the United States."

Continuing the tradition of American ingenuity and manufacturing, the company introduced a new generation of blue lights. The units are ultra-bright, all-LED blue lights, featuring an exceptional 209 lumens peak rating and a prismatic pattern to enhance visibility at greater distances. The units' all-LED construction significantly increases their lifespan, ensuring they will be around to provide reliable service for years to come.

The biggest benefit of the new blue light lies in its reduced energy footprint. While being 15 times brighter than the previous generation, the new blue light is low-maintenance, safe to recycle and has superior luminous efficacy. The unit provides 19 times more lumens per watt when flashing and when in "constant on," which brings significant savings to a growing number of energy-conscious college and university campuses in the United States and abroad.

The university's decision to standardize its lights will continue to save scarce monetary resources while providing the priceless benefit of student and faculty safety. Confidence is at an all-time high at FSU that the blue light towers and emergency phones will operate effectively when they are most needed.

Bob Shanes *is the vice president-sales at Talk-A-Phone. He can be reached at* rshanes@talkaphone.com.

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FEATURE

SCORING HIGH MARKS

Rural school district makes the grade with security strategy

By Leon Langlais

HIGHWAY 94, WHICH RUNS A RULER-STRAIGHT PATH BETWEEN COLORADO SPRINGS, COLO., AND KANSAS, IS ABOUT THE ONLY THING THAT BREAKS UP THE VISTA OF LUSH, GREEN ALFALFA FIELDS AND CATTLE RANCHES IN EASTERN COLORADO. THE TOWN OF RUSH IS ONE OF SEVERAL UNINCORPORATED TOWNS THAT DOT THE HIGHWAY'S PATH, AND IT IS THE RURAL HOME TO A POPULATION OF FEWER THAN 750 PEOPLE.

Located 40 miles east of Colorado Springs—the state's second-most-populous city, nestled at the base of the iconic Pikes Peak in the Rocky Mountains—Rush also is home to the only school building in the Miami-Yoder School District, which for years struggled with many issues stemming from its remote location and the poor condition of its facilities. The district, which serves a 500-square-mile area of three counties in this rural part of Colorado, was spending a significant portion of its budget busing students elsewhere to provide them with services not available at the school.

THE CHALLENGE

The Miami-Yoder School, which serves the needs of students in pre-kindergarten through high school, needed a new facility to remedy some significant safety and security issues. Most notably, the district needed a building with fewer accessible entrance and exit points than its then-current arrangement, a mixture of a nearly 100-year-old main building and series of aging portable classrooms, some of which dated back to the 1970s, replete with leaking roofs and sagging floors. Not only were the portable classrooms cramped and in disrepair, but students often had to leave the buildings and walk around the campus, which borders a huge cattle ranch on one side, to reach their next class.

In May 2007, the school went into lockdown due to a shooting threat from a high school senior who found out he would not be graduating. As a result of the campus's fragmented nature, it took law enforcement more than two hours to clear the buildings and grounds. Also, due to the school's remote location, it took the responding SWAT team nearly 45 minutes to arrive at the school from nearby El Paso County.

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"That was a big concern out here because of our location," said Rick Walter, the district's superintendent. "In the event of an incident, it's very difficult for law enforcement to respond, and we needed to have our own processes in place to ensure the safety of students until their arrival."

The construction of a new facility for Miami-Yoder would ensure that administrative staff could take advantage of technology that would allow school officials to control entry to the building and have access to surveillance video footage of incidents as they unfold. Administrators also wanted the security system to help manage the activities of the school population—controlling student and staff access to certain areas and using the system as a deterrent to ward off such incidents as vandalism or minor assaults. Administrators also valued it as an investigative or evidentiary aid should any incidents occur on school grounds.

THE SOLUTION

Thanks to Colorado's Building Excellent Schools Today (BEST) program, the town of Rush is now home to one of the newest and most technologically advanced school facilities in the state. Funded by an $18.1 million BEST grant, the new Miami-Yoder School consists of a 91,000-square-foot building that features new construction; renovated spaces; several new classrooms for the school's 300 students; new and remodeled gymnasiums; and new spaces for special education, music, art and vocational instruction in welding, woodworking and agricultural mechanics.

Despite all these advances, school administrators ranked their new access control, intrusion and surveillance system from Tyco Security Products, designed and installed by Denver-based systems integrator Secure All Solutions, as perhaps the new school's most important technological improvement. Access through the building's 11 doors—including three main entrances into the elementary and middle school wings, one into the main administrative offices and several interior doors separating different areas of the school—can, for the first time, be controlled automatically using the EntraPass Corporate Edition access control platform from Kantech.

"Being able to finally control access to the entrances and exits of our facility was really one of the primary drivers of our construction," Walter said. "Not only does this limit access through our exterior doors, but it limits the amount of traffic roaming the hallways within our building and between the different areas of our school."

The vocational arts teacher, for example, would have access to the school's new 1,900-square-foot vocational wing and its welding and metal-working workshops, woodworking area and a greenhouse, and to one of the school's five computer labs. But he would not have access to the elementary wing. Likewise, facilities staff and certain administrators would be the only people granted access to the school's physical plant, which houses the new ground source pumps for heating and cooling. They, along with solar photovoltaic arrays on the school's roof, are expected to reduce utility costs to less than $1 per square foot.

"For such a small, rural school, they could have kept their access control system simple and not integrated with intrusion or surveillance video," said John Castle, president of Secure All Solutions. "We were working with a blank slate on this project, and it became clear early on that they wanted a first-class type of system to meet the security challenges identified at Miami-Yoder school."

Working with Secure All project manager Cory Franklin, school officials required that all doors be locked and remain secured throughout the day, with the exception of a 20-minute period each morning when students and staff arrive. Visitors, including parents,

vendors and other guests, must gain entry using telephone entry systems at each of the three main entrances. When the building is not occupied during non-school hours or holidays, it remains protected and secured with DSC PowerSeries intrusion alarm panels, also integrated into the EntraPass software.

For the first time, administrators can monitor conditions within each classroom, hallway and other common areas, including the gymnasium and cafeteria, and exterior areas, such as parking lots, using a mix of about 80 American Dynamics IP and analog cameras. Two American Dynamics HDVRs, which handle both IP and analog video feeds, integrate into the EntraPass software, which can automatically call up a corresponding camera view of an access control event, such as a person entering a door or someone presenting an invalid badge, Castle said. The cameras record to two 32-channel HDVRs, one handling video from the north side of the building and another from the south. Video is stored for 30 days, but the school has the capability to increase that to 90 days if necessary.

The cameras focus on the students' behavior in the classroom and not the performance of the teachers, per Colorado regulations. Surveillance footage has already aided in the resolution of several incidents, including minor vandalism, thefts of items from backpacks, and disputes between teachers and students. It has served as an instrumental tool in an expulsion hearing.

School officials can also view video and access events and reporting, and they can manage the system from their desks in the school's administrative offices or remotely using a Web browser. This ability for remote access using Kantech's Remote Client also makes it possible to provide real-time management and surveillance capabilities to local law enforcement agencies, which are able to access the system both at a central dispatch location as well as from their patrol cars, with the ability to completely lockdown the school if necessary.

This remote access also provides conveniences when servicing the system. "If there is a problem, we're able to diagnose more than 85 percent of that system from our offices more than two hours away," Castle said.

By employing a strategy of using state-of-the-art technology to improve security and safety conditions and significantly reduce ongoing operational costs, Miami-Yoder School satisfied the district's goals of becoming a safe and secure environment for students, staff and the surrounding community. Now residents of the town of Rush have a local landmark of their own.

Leon Langlais *is the director of product management for both the Kantech and DSC product lines for Tyco Security Products. He can be reached at* llanglais@tycoint.com.

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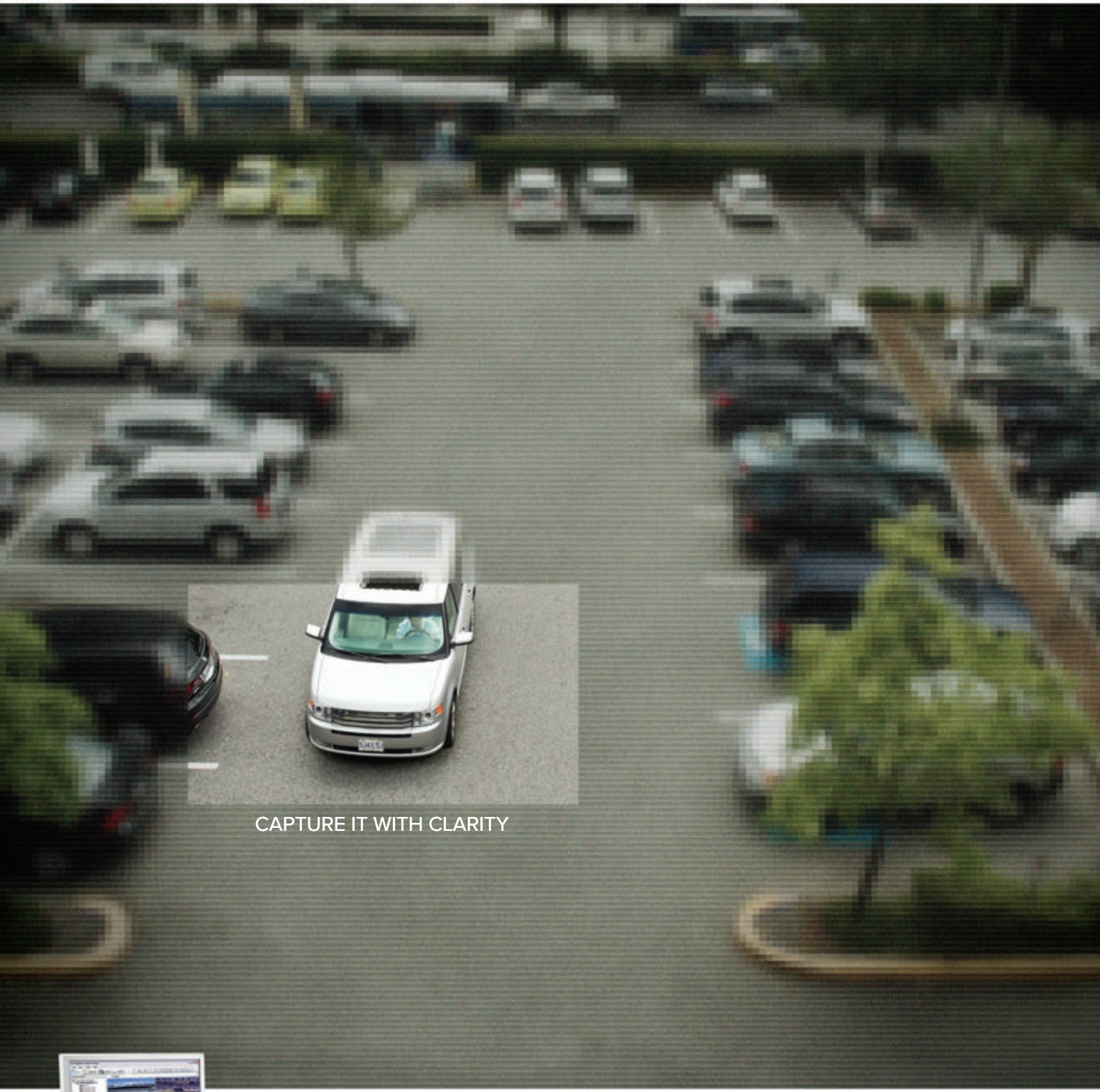

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$265 directly from the company. The price meshed fairly closely with her program goals: The $35 per term rental price is intended to cover most of the cost of machine replacement. "In two years I'll make roughly $200 per machine, and that should allow us to replace the netbooks as part of our own sustainable program," she says.

The most common processor in the latest netbooks is the Intel dual-core Atom (N450, N455, N550, or N570) or AMD's dual-core C-Series Processor C-50. Only the Acer Aspire One models include 2 GB of RAM, upgradable to 4 GB; the others come with a single gigabyte, expandable to 2 GB. Hard drives are all a standard 250 GB. (The ones ordered by Connely at Bellevue less than a year ago came with only 160 GB.)

The six-cell lithium ion battery in the most recent crop of netbooks ensures that they'll last through a respectable seven hours of usage. Other common features include 802.11b/g/n wireless; 10/100 Ethernet; built-in webcam, mic, and mono or dual speakers; a graphic processor for media acceleration; three USB ports; and a digital media-card reader. None comes with a CD or DVD drive; adding one requires use of an external media drive that can plug into one of the USB ports.

Considering that writing papers is one of the college uses most suited to a netbook, screen size and resolution are important. Most of the popular models feature 10.1-inch displays, although the Acer Aspire One models have 11.6-inch screens. With most models, the screen resolution is 1024x600; the Acer Aspire One AO722 and Samsung NF310 boast 1366x768 resolution.

While the similarities among netbooks outweigh their differences, each netbook company usually offers some feature to set its device apart from the pack. For example, the Acer Aspire One netbooks have touchpads that support circular motion scrolling, pinch-action zoom, and page flip. The Asus Eee PC netbooks feature matte displays instead of the seemingly ubiquitous glossy screens. Plus, they come with 500 GB of Asus-hosted web-based backup and storage.

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Buyer's Guide to Netbooks
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Software Options

Gone are the days when netbook makers put Windows XP, Windows CE, or Linux on their machines and called it a day. Now every netbook of note includes some version of Windows 7: either Windows 7 Starter or Home Premium.

Windows 7 Starter offers a collection of programs for doing the basics—using the internet, sending e-mail, creating documents, playing media, and connecting to networks—but nobody would mistake this for a fully turnkey computing experience. The Home Premium edition, a $120 upgrade when purchased directly from Microsoft, adds a few features that will appeal enormously to some users: 64-bit support and the ability to create and play DVDs (using an external drive).

Faced with the bare-bones environment on her netbooks, Bellevue's Connely compiled a list of recommended websites where students can obtain free software, much of it delivered as an online service.

Her no-nonsense approach illustrates the unheralded advantage of the netbook: It can serve as a portable cloud terminal that gives users easy access to applications hosted somewhere else. Libraries can check them out to students for an afternoon study session; configurable classrooms might keep a supply on hand for team use; and computer labs can provide a few for casual couch-surfing access. The possibilities are as unlimited as the cloud itself. **CT**

Dian Schaffhauser *is a senior contributing editor of this magazine.*

Editor's note: *Considering netbooks as part of an overall next-gen classroom design? This January in Orlando, FL,* ***School & College Building Expo 2012*** *will offer 30 sessions on the future of education design and construction in both the K-12 and higher ed markets. For more info go to* scbexpo.com.

Netbook Niche: Scanning on Campus

LETOURNEAU UNIVERSITY in Longview, TX, introduced netbooks in 2009 to act as an on-campus scanning system that was dramatically faster, more flexible, and less expensive than proprietary solutions. A dozen netbooks have replaced a collection of handheld magnetic stripe readers for recording student attendance at mandatory chapel and to track participation in other campus events, such as a health fair and career fair.

According to programmer/analyst Steven Hadfield, the netbooks are all ASUS Eee PC 1000 HEs running Windows 7 Enterprise. "We wanted a platform that was reliable, as well as one that had replaceable elements using commodity hardware," he says. "The [scanning] application we built was written in Java, which allows cross-platform support in terms of both hardware and operating system. As a result of using commodity hardware, we were open to purchase cheaper hardware that our IT staff would be able to directly support."

The university chose the specific model of Asus netbook because it was powerful enough to handle even the fastest swipes through the USB-powered bar-code readers, says Hadfield. Plus, it can run for hours without being plugged in, is small enough to be installed inside a kiosk, and has a screen large enough to allow attendees to see their picture when it is displayed.

DIVING into the cloud

By
Charlene O'Hanlon
&
Dian Schaffhauser

In a two-part series, *CT* provides IT administrators with an easy-to-understand primer to help them educate campus constituents about the cloud and what it can do for their institutions.

Is it any wonder that the forecast is calling for cloud? It's a perfect storm out there, with powerful forces remaking the IT landscape in higher education. On one side, devastating budget cuts are pushing IT departments to identify ever-greater cost savings. On the other, the explosion in mobile devices is pressuring IT to provide anytime, anywhere computing with no downtime. And finally there's data—a flood of never-ending data—that need to be stored and analyzed.

Implemented strategically, the cloud can help colleges and universities tackle all of these issues. Indeed, it promises to allow IT departments to support their institutions faster and more cheaply. But the term itself has become so abused that many people on campus have no idea what "the cloud" means anymore. Right now, it's more like a thick fog.

In this two-part series, *CT* hopes to cut through some of that confusion and help IT administrators explain cloud-based services to their constituents in plain English.

WHAT IS THE CLOUD?

The easiest way to understand the cloud is to think of it as a utility, like electricity. When you plug a device into a wall outlet, electricity flows. You didn't generate the electricity yourself. In fact, you probably have no idea where the electricity was generated. It's just there when you want it. All you care about is that your device works.

Cloud computing works on the same principle. Through an internet connection (the equivalent of an electrical outlet), you can access whatever applications, files, or data you have opted to store in the cloud—anytime, anywhere, from any device. How it gets to you and where it's stored are not your concern (well, for most people they're not).

The potential benefits of this approach are enormous. To stick with the electricity analogy, if your IT department is still pre-cloud, it's running the equivalent of its own generator. And with that comes a load of responsibility: Generators break, they run out of fuel, they need to be serviced, and—if demand for power increases—new ones need to be bought and brought online.

The cloud frees IT from the tech equivalent of all that. Because, just like power companies, cloud providers are the ones who are responsible for all maintenance, infrastructure, and repair. *They* are responsible for meeting surges in demand, and ensuring that service is reliable.

WHAT IS A THIN CLIENT?

A thin client is piece of hardware or software that can only work in a networked (or cloud) environment, because it relies on a more powerful computer to do most of the processing work. It's got enough oomph to start up, but after that it looks to its bigger friend for everything else. Think of it as a politically correct term for what used to be called a dumb terminal.

The analogy to electricity is a little simplistic, because cloud computing actually represents more than one type of service. Indeed, it might be more appropriate to compare cloud computing to *all* the utilities hooked up to your house: electricity, water, and gas. In the case of cloud computing, there are three basic types of service (as defined by the National Institute of Standards and Technology): software as a service (SaaS); infrastructure as a service (IaaS); and platform as a service (PaaS).

Software as a Service

Ever used Gmail? How about Yahoo Mail? If so, you've used software as a service. In fact, many people have been using the cloud for a long time without ever quite realizing it. For some reason, web-based applications like these haven't registered with most users as being "cloud." Only when applications like Google Docs replace software that has traditionally been locked inside the PC do people seem to twig to the cloud angle.

Quite simply, SaaS is a software application hosted in a central location and delivered via a web browser or other thin client (see "What Is a Thin Client?" above). Rather than purchase and install the application on individual computers, a school simply pays a subscription fee to a service provider. Users—whether students or employees—just log on to access the application.

To the end user, the experience is essentially the same as if the application were installed on the user's hard drive or the university's internal network. By having the application delivered as a service, however, students

can work on assignments from any location; HR managers can do payroll from the comfort of their living rooms; teachers can work on lesson plans after hours. What's more, users can utilize different devices without having to tote around thumb drives to port over updates, since the contents of the project are stored in the cloud.

And, from an IT perspective, there's a beautiful upside: No longer do you have to update software on machines scattered around campus. No more patches, no databases tracking installs and software updates. And the nightmare of keeping track of thousands of software licenses? Gone.

Most often, SaaS is associated with business applications such as accounting, customer relationship management, and human resource management, but more consumer-focused applications are coming online all the time. Google paved the way with its popular Google Apps for Education, which has been adopted as the de facto business productivity suite by a number of colleges and universities.

In late June, Microsoft rolled out Microsoft Office 365, which includes a cloud-based version of its popular Office suite, in addition to its Exchange e-mail and SharePoint collaboration application. Although the cloud-based offering was not yet available for the education market at press time, Microsoft does offer a similar suite of tools via the cloud through its popular Live@edu service. At some point, the company plans to transition Live@edu to the Office 365 platform, although a date has not yet been set.

HOW THE CLOUD CAN IMPROVE CAMPUS OPERATIONS

INCREASING AGILITY AND SPEED

Whether a school uses a public or private cloud, one of the big upsides is the ability to implement solutions quickly in response to customer requests. As service requests come in, IT can rapidly provision a virtual server to run operating platforms and applications, and dedicate sufficient storage for the work at hand.

Lone Star College System (TX). The private cloud at this Houston-based community college system has allowed its IT department to act faster than it ever dreamed. When the Foundation Office implemented a new application to manage donor data, for example, IT had the required server and storage resources up and running within a week, according to Link Alander, associate vice chancellor of technology services. Previously, that process could have taken three to four months.

During crunch times, nimble provisioning comes in handy, too. "We dynamically swing capacity to wherever it's needed, such as our registration systems before the semester begins or grading applications as the semester ends," Alander explains.

Brown University (RI). This small Ivy League college faced a dilemma: Its ERP systems were very old and unable to meet new business or compliance requirements. In particular, HR/Payroll was "in the worst shape, maxed out, and at risk of failure," according to a project charter issued by the university in August 2011. Rather than go through the risky process of installing a new ERP system on-site, the university decided to adopt a set of cloud-based applications from Workday, which could be implemented in a fraction of the time. Phase I of the project, which involves rolling out the new HR/Payroll system, will be complete by July 1, 2012.

Infrastructure as a Service

Think of IaaS as an outsourced data center with benefits. And limitless capacity. Storage, hardware, servers, and networking are all owned by a third-party provider that is responsible for the maintenance, operations, and housing.

Billing is handled monthly using the utility model. Analagous to the electric company, cloud providers meter your computing usage—and you pay only for what you use. So, instead of buying a server that might run at 15 percent capacity, for example, you pay only for the 15 percent you use.

This pay-as-you-go model can provide a tremendous cost advantage for universities and colleges, which see demand for computing power wax and wane over time. Instead of buying, maintaining, and housing servers to meet those periods of peak demand, schools can use the cloud to scale up or down as needed, without the need to purchase any hardware themselves. It's more efficient.

In higher ed, IaaS in a private cloud formation (see "Know Your Clouds" on the next page) is popular with departments within research universities that need extra computing power and storage but don't want to maintain their own infrastructure.

Platform as a Service

PaaS is a software-development platform that is stored in the cloud and can be accessed via a web browser. It makes a variety of programming languages, operating systems, and tools available to developers, saving them the cost of purchasing and installing everything themselves.

Given the unique character of higher ed, it's not unusual for institutions to build their own software tools, rather than utilize an off-the-rack solution. PaaS offers a development path that can dramatically reduce the time to launch—and save money. The **University of San Francisco** (CA), for example, implemented a customized service desk app in just three months, using PaaS provider ServiceNow.

Each development platform is different. If an institution develops its applications on a closed PaaS platform, there is a danger of vendor lock-in, since it may not be easy to migrate to a different platform. One way to sidestep the issue is to go with an open source PaaS, such as Red Hat's OpenShift or VMware's Cloud Foundry.

KNOW YOUR CLOUDS

Just as there are all kinds of real clouds—stratus, cirrus, cumulus—there are different types of computing clouds. The three primary cloud types are public, private, and hybrid. The most appropriate cloud for your institution will depend on several factors: what services you want to take to the cloud; your school's comfort level from a security standpoint; the existing infrastructure you have on campus; and privacy regulations that may dictate how data are secured.

Public Cloud

A public cloud is essentially what everyone means when they talk about "the cloud." As we discussed in "What Is the Cloud?" the infrastructure, applications, and resources are housed off-site in a location hosted by a third-party provider. Data is accessed via the internet on an on-demand basis, and users are billed monthly for their use of the resources within the public cloud.

The public cloud model includes a number of benefits, including:

- Simple and inexpensive setup (the service provider incurs the cost of the hardware, applications, and bandwidth)
- On-demand scalability
- Users pay only for the resources they use

Because it is a public cloud, however, there are also some notable drawbacks, including:

- Greater risk of security breaches than with other cloud models. The business model of a public cloud is essentially based on economies of scale. It's what allows cloud providers to charge low prices. For that to happen, most pursue a policy of multi-tenancy. In other words, the data of lots of companies and organizations will be stored in the same computing environment as yours. Although there is widespread disagreement about the risks involved, some people believe multi-tenancy increases the chances of breaches or accidental exposure.
- A perceived lack of control over data. Since the data is housed off-site and in someone else's hands, universities don't have physical possession

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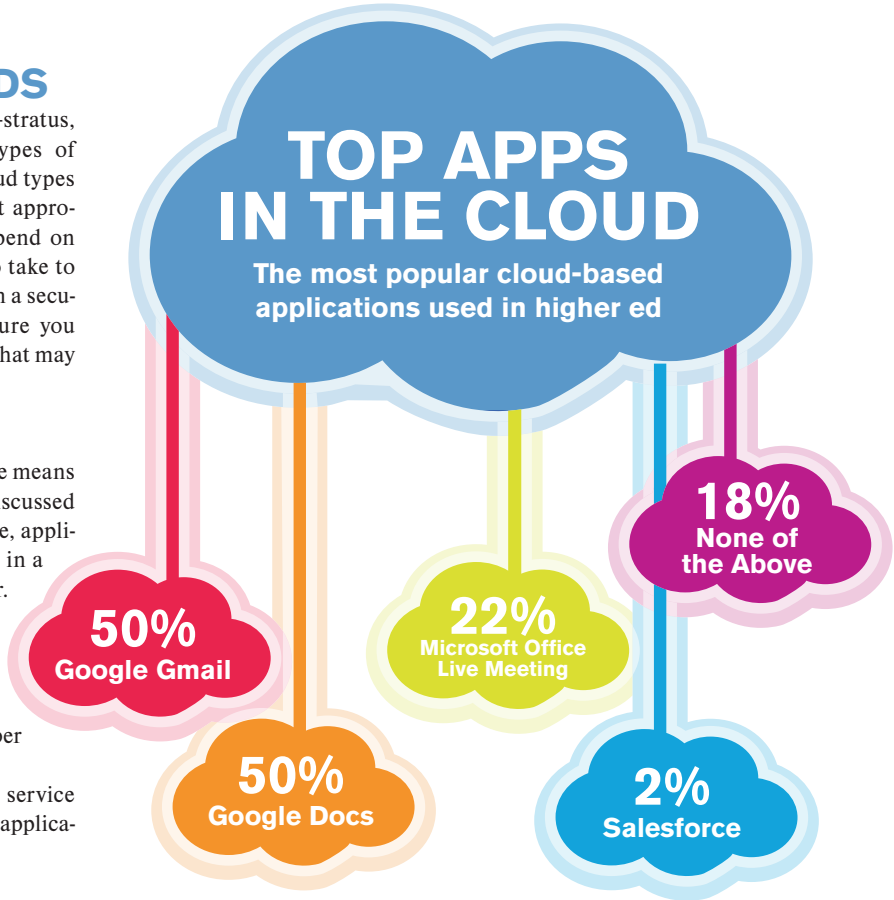

Source: CDW-G 2011 Cloud Computing Tracking Poll (based on responses from 150 higher ed IT professionals)

RESOURCES

For links to the schools, organizations, and vendors mentioned in this article, visit *campustechnology.com/0111_cloud.*

HOW THE CLOUD CAN IMPROVE CAMPUS OPERATIONS

IMPROVING SYSTEM RELIABILITY

A shift to cloud-based operations can help ensure high service availability and solid data recovery. That was a major impetus at **Lone Star College System** (TX), a large community college system in Houston that recently implemented a private cloud.

Before then, whenever the system's PeopleSoft ERP was put to the test, such as at the start of a semester, IT staff simply crossed their fingers and hoped. "It wasn't a question of whether the ERP would crash, but when," says Link Alander, associate vice chancellor of technology services. Furthermore, he adds, "core services—the network, internet connectivity, campus connectivity—used to break all the time."

In a massive overhaul of its IT operations encompassing both infrastructure and organizational changes, Lone Star consolidated 13 data centers down to two, which are much more easily replicated, using a combination of gear from HP, EMC, and VMware. Now, "we've achieved five-nines availability of our critical applications," says Alander, using IT jargon to describe an uptime record of 99.999 percent.

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HOW THE CLOUD CAN IMPROVE CAMPUS OPERATIONS

PROVIDING ANYWHERE ACCESS

Arizona State University. Arizona State was the first to do a large-scale student deployment of Google Apps for Education, the cloud-based set of online e-mail, collaboration, and productivity tools. The move away from on-premises applications benefited IT because it no longer had to concern itself with managing software licenses for the entire student population, nor did it have to make sure hardware was compatible with software. "This is something that is truly available anywhere at any time," says Sam DiGangi, the university's associate vice president of university technology and an associate professor of education. To use the applications, all the user needs is access to a browser and internet connection.

The cloud enables collaboration among team members, too. The obvious example is enabling a group of students to cowrite a document. But it doesn't stop there. It also provides a way for collaborating organizations to share data.

University of California, San Diego. The UCSD Health System has begun using cloud computing to receive imaging work from remote medical centers and hospitals to expedite treatment of trauma patients. Previously, files stored on CD were often transported by ambulance with the patient to the UC facility. If the CD disappeared or wasn't readable, earlier treatments and tests would have to be duplicated. Now, utilizing eMix, an electronic medical information exchange from DR Systems, the trauma center can access a website to pull the images needed for patient care.

"The efficiency and reliability of cloud computing are excellent," says Jeanne Lee, trauma surgeon at UCSD Health System and assistant clinical professor of surgery at the university's school of medicine. "It is an advance in the way we exchange medical information between healthcare facilities. This benefits our trauma patients for diagnoses and treatment, and cuts down on redundant imaging."

76% OF HIGHER ED CLOUD USERS HAVE REDUCED THE COST OF APPLICATIONS MOVED TO THE CLOUD, WITH AN AVERAGE SAVINGS OF 21%.

Source: CDW-G 2011 Cloud Computing Tracking Poll (based on responses from 150 higher ed IT professionals)

of their own information, which makes some administrators nervous. And if the internet or cloud provider's system goes down, so too does your information, although the uptime of most cloud providers exceeds that of almost every in-house operation.

- Possible slow data transfer rates. Since public clouds use internet connections, the ISP controls the data transfer rate. Educational institutions that want to use the cloud to store and transfer large amounts of data such as high-definition video must invest in the bandwidth to do so—or they may want to use a private cloud instead.

A number of institutions in higher ed are adopting software-as-a-service (SaaS) applications such as Google Apps that live in the public cloud. Others are using the public cloud to store and access nonsensitive data such as student assignments.

Private Cloud

For institutions that don't want to surrender their data to what some perceive as the Wild West of public clouds, private clouds have emerged as an alternative. They can be managed by the school's IT group or by a third-party provider, and they can be located either on- or off-site. In short, they offer the simplicity, flexibility, and elasticity of the cloud computing model but for a single organization only.

Sounds like a data center, right? Yes, but the way it's set up is different. In a private cloud, virtualization of applications and resources is key. Through virtualization, private clouds offer easy scalability, flexible resource management (such as on-the-fly provisioning), and the most efficient use of the hardware. Other technologies work in tandem with virtualization, such as data center automation to help with auto-provisioning of servers and identity-based security to ensure that only authorized users have access.

Private clouds are an attractive option for institutions that already have a properly functioning data center. In such cases, repurposing the data center can make a lot more sense than throwing it all out in favor of a move to a public cloud. If you decide to keep it in-house, though, just remember that IT is still on the hook for all maintenance and infrastructure.

Private clouds will also appeal to institutions

that worry that the public cloud may jeopardize their compliance with state and federal regulations, including the Family Educational Rights and Privacy Act, the Health Insurance Portability and Accountability Act, and the Americans With Disabilities Act. Such concerns often extend to research data, too, particularly for universities involved in classified work.

Hybrid Cloud

For schools wanting the best of both worlds, there's the hybrid cloud. Hybrids are a combination of public and private clouds that offers the benefits of multiple deployment models. For example, an organization can couple its current on-premises hardware with cloud-based infrastructure that's scalable and provisioned on demand, then place its applications and data on the best platforms and span the processing between the two. It's a great way to capitalize on existing infrastructure while building in flexibility, scalability, and on-the-fly provisioning.

It also gives schools a way to address the whole security and privacy issue. You keep sensitive data—be it student information or research—in the private cloud, while using the public cloud for the less-important stuff. CT

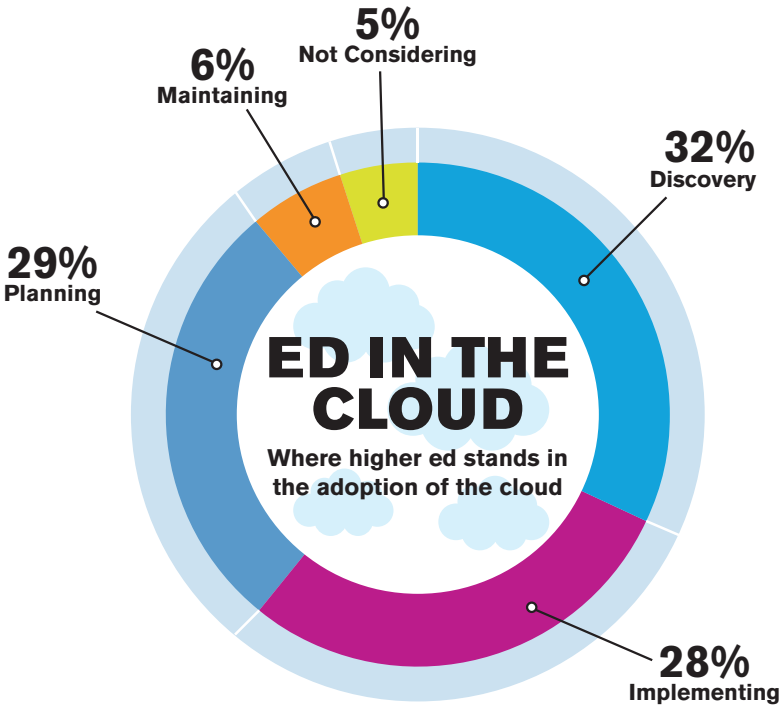
__Dian Schaffhauser__ is a senior contributing editor of this magazine. __Charlene O'Hanlon__ specializes in technology reporting and is based in the New York area.

***Editor's note:** Our monthly Campus Cloud Computing e-newsletter provides a mix of breaking news, in-depth features, and cutting-edge products. Subscribe at* campustechnology.com newsletters/higher-education.aspx.

COMING NEXT MONTH

In the second installment of our two-part series, appearing in December, *CT* takes a look at the critical issues facing every institution considering a move to the cloud, including:

- **Does it make business sense?**
- **Security**
- **Contracts**
- **Exit strategies**
- **Vendor lock-in**
- **Implementation planning**



Source: CDW-G 2011 Cloud Computing Tracking Poll (based on responses from 150 higher ed IT professionals)

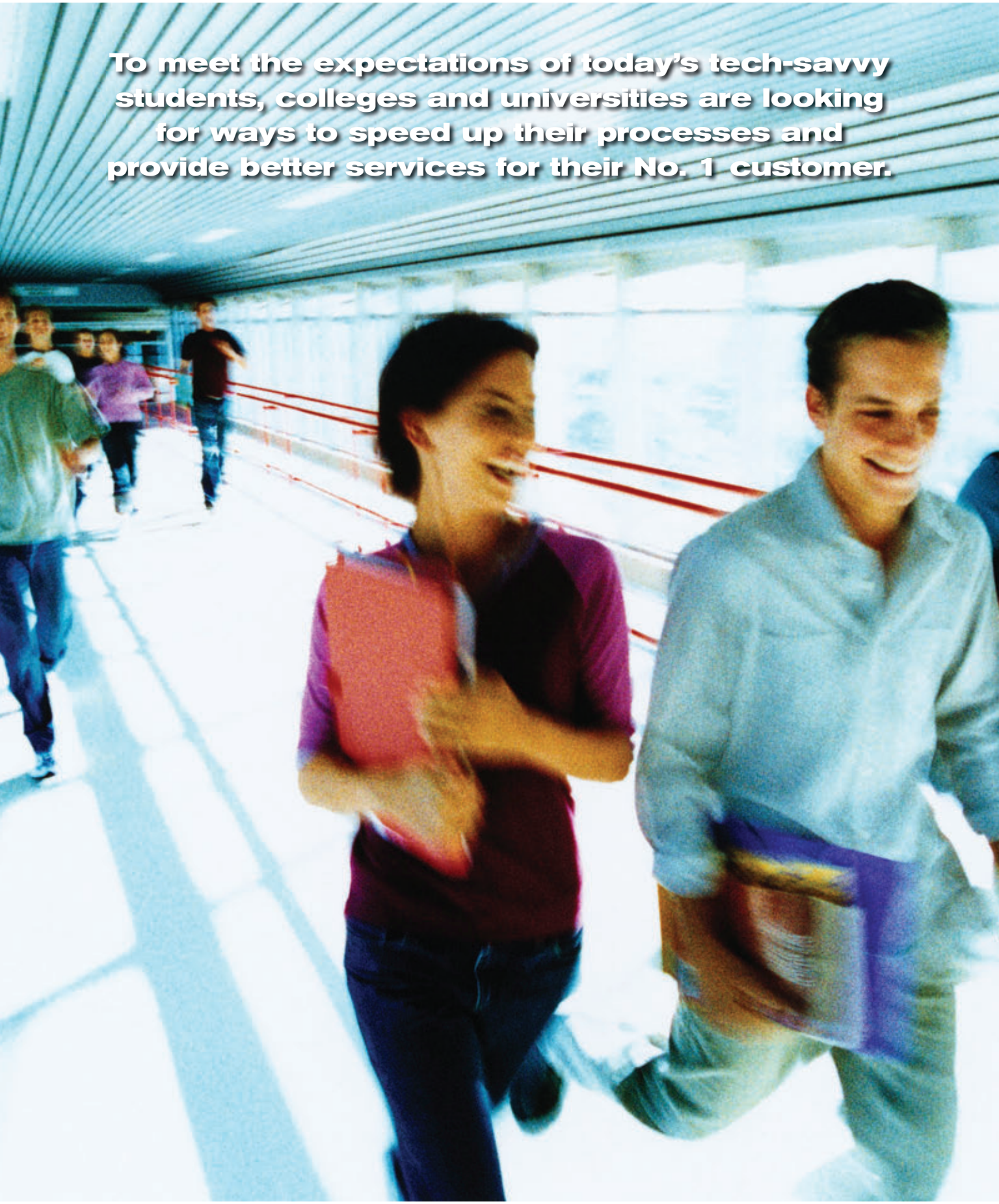
HOW THE CLOUD CAN IMPROVE CAMPUS OPERATIONS

DATA ANALYSIS

According to a 2011 research project by CDW-G, half of surveyed higher ed institutions use Google Docs and Gmail. Beyond freeing IT from having to support in-house e-mail and collaboration systems, Google's cloud-based applications also provide in-depth analytic capabilities through Google Analytics. The service provides a way to analyze traffic on sites, documents, presentations, and spreadsheets.

But analytics don't stop with Google. Every major cloud-based service builds reporting into its product, allowing colleges and universities to base decisions on solid data—and hopefully improve both their products and the customer experience.

In the first half of 2011, for example, the **University of Northern Colorado** pulled a report from its hosted version of Blackboard to evaluate system usage. The report outlined several research goals, including "how and why faculty, staff, and students use the current LMS" and "to provide insight into areas where updates, changes, or best practices may need to be applied to facilitate increased online delivery."


To meet the expectations of today's tech-savvy students, colleges and universities are looking for ways to speed up their processes and provide better services for their No. 1 customer.

Paul Harizan

By Michelle Fredette

7 WAYS TO STREAMLINE STUDENT SERVICES

FOR JUST ABOUT ANY SERVICE provider, faster is better. It certainly holds true for higher education, which has increasingly come to view students as customers: Quick customer service has become a priority in student-oriented areas, from parking management to tracking degrees. Looking to stay competitive, colleges and universities have turned to technology to simplify processes, reduce costs, and meet the high expectations of a technically literate student body. *CT* looks at how seven schools are solving a wide range of problems, all with the goal of streamlining their students' college experience.

Manage Parking Online

Like most universities, the **University of California, Irvine** had parking problems: too few patient stalls at the university medical center, overflowing residence hall parking lots, and a cumbersome system for managing and enforcing parking.

To alleviate the problem, in 2007 the university designed and implemented the Virtual Parking Management System (VPMS), a web-based application consisting of an Adobe ColdFusion front end with an SQL Server database. According to Ron Fleming, director of UCI's Parking and Transportation Services, the goal was to create a more flexible, easy-to-use system. "We made it attribute-based," he notes. "That way, we can turn things on and off as needed."

The web-based system has a number of advantages. At the medical center, for instance, the receptionist inputs visitor vehicle and stall information, so parking is tracked and enforced more precisely. As a result, the parking department has been able to reallocate some of the visitor spaces—freed up due to regular turnover—for employees who need to park for the day.

On-campus residents now manage their registration through the VPMS online, anytime they want. Parking is enforced using a license plate reader on the enforcement vehicles, rather than stickers or rearview mirror tags. As a parking employee drives through a residence parking lot, the readers compare the license plate numbers against the database. If the plate isn't registered, the reader dings, and a citation is written.

Fleming says the system's reporting tools have helped the department "reorganize parking in a major way." Due to more accurate enforcement, people have learned that they can't park in the wrong lots. The result is a clearer picture of parking needs, more precise parking allocation for residents and visitors, and all-around easier parking. Parking complaints are down and other schools are looking to Irvine as a model. And the cost? It was relatively low once the parking department collected unpaid fines from the biggest violators.

Automate Textbook Rentals

Eastern Illinois University has been renting textbooks to students since 1899, and, until recently, the process had changed little for decades. Renting textbooks meant hours-long waits for students while staff picked their books off the shelves. Staff then had to handwrite the copy numbers for each book, and later enter them into the textbook inventory system. In addition, textbooks were stored on three floors of the old textbook building, which led to a lot of heavy lifting.

All this changed for the summer semester of 2010, when EIU unveiled an RFID-based rental system (using radio-frequency ID tags to track books) in a new textbook building that stores all the books on one big floor. According to Dave Bailey, senior applications analyst at EIU, the new system is based on software designed for public library systems and enables students to come into the stacks, select their own books, and check them out in a matter of seconds by stacking them on a Tech Logic brand scanner.

When the semester is over, students can either scan the books back in or put them in a drop box. Bailey says the automation both speeds the process and helps prevent errors.

In order to adapt the library system for textbook rentals, Bailey and his team had to modify C# scripts to interface with the school's Banner system, as well as write PL/SQL (Procedural Language/Structured Query Language) scripts to update textbook tables and check students' book rentals against their schedules in Banner. The team also customized the check-out/check-in messages automatically sent by the system to make them more student-friendly.

The preparation paid off. When the system launched last year, textbook-rental lines were completely eliminated—the average processing time, from the moment a student walks into the building to him leaving with his textbooks, is now just 10 minutes.

Go Paperless With Refunds

Central Piedmont Community College (NC) is on a paperless crusade. One program that has radically changed as a result is the school's student refund program. In the past, CPCC mailed around 25,000 refund checks per year. The process was labor-intensive and costly, recalls David Baker, director of accounts payable and procurement.

"There were costs for paper, for the special microtoner ink needed to print the checks, and for labor hours, especially when you factor in lost, stolen, and destroyed checks that had to be reissued," he says. And each check cost an additional 42 cents for postage.

CPCC went looking for a solution that would enable it to send refunds electronically to all students, not just the 15 percent who had bank accounts. After an RFP search, Baker's department settled on Higher One, a payment-services provider.

After each registration period, the CPCC IT department sends a list of new students to Higher One, which then mails each student a debit card. The card is not active unless a student gets a refund and chooses to use it. If they prefer, students can opt to use their own bank accounts instead. For those who choose to use the debit card, Higher One opens a checking account.

Meanwhile, CPCC identifies student refund amounts, generates a report that it then transfers to a Higher One template, and uploads the file to a secure Higher One server. Within the same day, Higher One distributes the refunds to student accounts.

Overall, Baker says, the process is quicker than the check process, and ATMs installed around campus give students instant access to cash. And with

Higher One administrating the refund process, CPCC can reallocate staff hours to other tasks. Best of all, each refund now costs less than the price of one postage stamp.

Integrate Student ID Cards

In 2009, only 10 percent to 20 percent of **Carl Sandburg College** (IL) students bothered to get a campus ID card, because it wasn't required for many student functions. The cards simply "didn't add value to the student experience at the college," says Samuel Sudhakar, CSC's vice president of administrative services and chief information officer, adding that the low adoption rate made it impossible to identify legitimate students out of all of the people filtering in and out of campus.

To better integrate the ID cards into the campus experience, CSC worked with a company called Datacard Group to connect the ID card database to the school's Active Directory—essentially tying students' identities to their student records. Now, whenever students have to identify themselves in a class, at an administration office, or even the school fitness center, they punch in their ID number, and their picture is displayed. This way, "no one can impersonate the student," Sudhakar says.

By adding a bar code with students' ID numbers to the cards, Sudhakar's team turned them into library cards. And the addition of a magnetic stripe makes the cards usable for buying meals and books. The college now boasts a 95 percent adoption rate for the new student IDs. Students enjoy not only greater convenience but increased security, too.

The team also located a banking partner that pays for all the card-making supplies in exchange for printing the bank's logo on the back of the cards. Sudhakar's team is now in talks with the banking partner to incorporate debit capabilities, so that students can use the cards to access financial aid and refunds.

Track Degree Progress on the Web

In June 2009, as part of a campuswide move away from paper files, the **University of Alabama** rolled out SunGard DegreeWorks, a web-based tool that allows students and advisers to track a student's course requirements, electives, and transfer credits en route to a degree.

The product demystifies advising and helps students make the most of their advising sessions, reports Denny Savage, associate university registrar. Students and their advisers can map out the coursework needed for a degree term by term. In addition, they can carry out a "what-if" audit, he says, to "run their coursework against the requirements for another major, or tack on a minor to see where that puts them—what's needed for that major or minor."

Students can also plug in individual classes to see how they would contribute to the overall plan. They can even use DegreeWorks to see how they must perform to graduate with a specific GPA.

According to Savage, DegreeWorks provides the tools to help students complete their education in the shortest time possible, supporting the university's "finish in four" campaign, which stresses the need for students to graduate in four years to save themselves and their parents money.

In order to make DegreeWorks successful, Savage's department gathered a team of advisers, college registrars, and assistant and associate deans to help determine the product's look and feel, and how and when it would be implemented. It also got the student government involved, and marketed DegreeWorks through print ads, campus TV spots, and classroom presentations.

While Savage admits it's too soon to tell whether DegreeWorks will help more students finish in four years, his department sees an increasing number of students taking ownership of their degree paths and asking questions based on their DegreeWorks audits.

Provide Self-Service Support

In an effort to consolidate and efficiently manage recruitment and retention messaging across several regional campuses that comprise **University College** at **Texas Tech University**, the school recently implemented a central knowledgebase system using the RightNow CX Cloud Platform.

According to Michele Moskos, marketing director at University College, the knowledgebase enables the school "to provide the same answer to students' questions, whether they call in or visit the website or social media pages. If you search our website, for example, you search our knowledgebase." This is a change from the school's previous setup, where each regional branch of the college had its own site, and call-in centers relied on Excel spreadsheets and binders of printed documents—a system that led to incomplete or imbalanced information across the sites.

In addition, Moskos says her department can run a keyword search to find out how students are searching the website: "We know the top 20 questions that people are asking, and we know that these 20 questions could answer 60 percent of things the students want to know." Since implementing RightNow, the department has seen a 19 percent reduction in the number of incoming calls, and a 99 percent self-service rate on the website.

The college is also taking advantage of RightNow CX Engage, a customer-management tool that makes it possible to follow up on website queries with targeted e-mails and run e-mail campaigns. Because RightNow is integrated with the school's Banner system, administrators can send timely information just to the individuals who need it.

For instance, Moskos says her department can pull the data on which students are eligible for graduation, and then send them a note with instructions. "We're just communicating with students the way they expect to be communicated with in today's world," she says.

Forge Relationships Early

California Polytechnic State University prides itself on being forward-thinking when it comes to integrating technology into the recruitment, applications, and admissions processes. Cal Poly was one of the first schools to enable electronic application portfolios, and by the early 2000s the school had an automated acceptance program in place as well.

But it's around recruitment that Cal Poly demonstrates ingenuity in the use of technology to better serve students. According to James Maraviglia, vice provost for marketing and enrollment development, Cal Poly leverages its Hobsons EMT Connect customer relationship management system to provide personalized service to prospective students—starting with the messages they receive.

"Our CRM allows us to measure the effectiveness of each mail sent," Maraviglia says. "We then tailor future messages, including phone, text, chat, instant mail messages, and even webcasts—based on student preferences—to actively communicate with potential students."

For each prospective student, Cal Poly also creates a personal microsite that contains video messages from academic department chairs, current and former students, and other campus sources, all aimed at providing the information students need to choose not only this school, but the major they will pursue. Microsites are also created for counselors and parents, which further enhances the sense of community and personalized communication around Cal Poly. The technology helps the school nurture these early relationships despite the fact that only three of Maraviglia's staff are in the field to handle one-on-one conversations with as many as 100,000 prospective applicants.

By 2010, the applicant pool had jumped to 40,000 applications from 20,000 a decade earlier, Maraviglia reports. With recruitment and enrollment exceeding institutional goals, Cal Poly has started applying the same pervasive technical approach to improving retention and graduation rates.

"We're shifting all of our attention to intrusive academic coaching and support," says Maraviglia. "The model not only engages the front end, but it allows us to share with the deans and the enrollment people how to keep people there and, as importantly, how to foster the sense of giving back as part of our daily lives at Cal Poly." CT

RESOURCES

For links to the products and vendors mentioned in this article, visit *campustechnology.com/1111_services*

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SPEEDING UP THE BACK END

AT GEORGIA INSTITUTE OF TECHNOLOGY, the unique technology needs of seven distinct student services—health services, the campus card program, housing, dining, the bookstore, parking, and a new student center—are all managed under the Auxiliary Services Information Technology Group (ITG). And therein lies the challenge, says James Pete, director of the group. ITG has to meet the expectations of a highly technical student population that counts on the "same type of customer experience and online services that they receive from the external corporate marketplace," he notes. What's more, the department needs to create new solutions on an ongoing basis, without disrupting that high level of service for students.

Pete's department set out to bring the various technologies involved in these business groups under the management of one integration tool. The department hired an ETL (extract, transform, and load) developer, and began reviewing tools such as Microsoft SQL Server Integration Services, a platform for data-related solutions.

Wanting a tool "that can handle web servicing more effectively," Pete says, his staff is now trying out IBM InfoSphere DataStage. "Once you can get these [services] into a standardized platform, the tool itself allows you to develop integrations quickly," he adds.

A more integrated back end, along with more effective planning and oversight, has led to a better experience for students, even if they aren't always aware of it. If students, faculty, or staff buy a parking permit, for example, they now expect that their campus ID card, the BuzzCard, will work to open the gate. Similarly, when students arrive on campus and check into housing, they expect their ID card to open the door. Auxiliary Services has worked hard to make these integrations possible.

Pete's team also worked to streamline the immunization-compliance process. "We had not done a good job of letting students know where they were with their immunization-compliance requirement," Pete notes. His team created a website that lists the requirements, and notifies students about whether they are compliant or not.

"We're regularly messaging the students and driving them to that website," Pete says. Many new students complete their immunization requirements over the summer, before school starts. But graduate students get their admittance notice later than undergrads, and many come from countries with different immunization requirements. As a result, each new year begins with a pileup of immunization forms, and students anxious for the forms to be processed so they can register for classes.

Working with a back-end process workflow in Microsoft SharePoint Workflow Services, Pete's team was able to speed up immunization processing. The workflow reduced the time it takes for student records to be submitted and reviewed—and for the automatic registration hold to be lifted.

As Pete says, "Students don't necessarily look behind the scenes and know that this system is over in health, that system is student information systems and enterprise-level solutions; they see it as one Georgia Tech."

6 EASY STEPS TO ONLINE SUCCESS

By Richard Rose

Against his better instincts, an educator at West Texas A&M University shares his school's recipe for developing a successful online learning program.

IT'S HARD KEEPING PROMISES. Thirty years ago I promised myself I'd lose 30 pounds, with no progress to date. I resolved never to get annoyed at the puppy, with limited success. And I absolutely swore I would never write one of those "Six Easy Steps" articles, for one simple reason: Never write what you don't like to read. I am fundamentally averse to tackling complicated issues with a one-size-fits-all approach.

But I can't help myself. The online Master of Education program in instructional design and technology at my school, **West Texas A&M University**, has more than doubled its admissions during the last two years, even as similar programs nationwide have struggled. This is because we consistently honor six very simple practices in every course in the program. During my career as a senior instructional designer at Microsoft and Boeing, these practices were universal for online instruction. I have been shocked to learn how many online college courses incorporate none of them. So, with apologies, here we go:

1) Clean up Your Act!

Every new technology begins with a period of permissiveness. When typewriters were new, people expected spelling and grammar errors in typed letters. After all, it was difficult to make corrections, and people knew their correspondents would understand. When e-mail first emerged on handheld devices, people added "Sent from my BlackBerry" to excuse brevity and errors—no one was expected to be an expert two-thumb typist. Eventually, as technology and expertise improve, the tolerance evaporates. Typed letters must be accurate today, and the standards for text messages are sure to go up over time.

The same evolutionary timeline applies to online courseware. The earliest web-based college courses often looked as if a kindergartener had thrown them together. Every professor struggled just to get something usable on the web. So what if there were a dozen different fonts, text sizes, and bulleting styles on the same page?

Marshall McLuhan, a prominent professor and media analyst, once proclaimed that "The medium is the message," and he was right. Students will not respect your content if its presentation is awkward or sloppy. Today, universities and design firms that understand the importance of appearance are setting the bar for professionally designed courses.

Professors need to get over the stale assumption that they are in the content business and its appearance online is somebody else's problem. Every online instructor needs to become a specialist in online course development. This includes learning how to use tools such as Photoshop, Fireworks, Illustrator, InDesign, or their equivalents. By tapping just 20 percent of these products' functionality, you can develop 90 percent of your courses efficiently and attractively. The remaining 10 percent is what you can legitimately refer to a computer guru in your institution's instructional design center.

Professors need to get over the stale assumption that they are in the content business and its appearance online is somebody else's problem.

2) Answers in 24 Hours

E-mail is the lifeblood of online teaching. Every student e-mail is entitled to a response within 24 hours. I clear my e-mail queue three times a day. This is the greatest single source of positive comments on my course-evaluation forms. Students' gratitude for a timely response to their administrative issues and technical problems is overwhelming. It is the central pillar of the program's reputation, and the reason why current students refer a healthy number of new students to the program every year.

I don't always have the answer in 24 hours. An e-mail reply need only say that the request has been received, steps have been taken to address it, and that the matter should be resolved in a certain number of days. This always satisfies the customer.

3) Plenty of Structure

Online students are often afraid of drifting in cyberspace. The lack of a teacher's physical presence makes them wonder if they are going to be able to stay on task. I give my graduate students a choice of taking courses structured around deadlines or at their own pace. The deadline-based option has an assignment due every Sunday night, whereas self-paced students can turn in work anytime during the semester (only the midterm and final projects have due dates). Almost all students choose the deadline-based option. Without a series of evenly spaced deadlines, they are afraid they won't have the self-discipline to get the work done.

The best way to increase each student's comfort level is with lots of clear structure. The weekly format for the online study guides is the same for all 10 courses in the two-year rotation, so students don't need to figure out how each new course works. Instead, they can dive directly into the content.

4) Formal Phone Conferences at Midterm

Every student has one formal appointment with the program chairman each semester. Since the majority of students live more

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than 50 miles from campus, these are done by phone. I post a table of available days and times using Google Docs, and each student claims an open slot.

Everyone looks forward to these 30- to 60-minute appointments, including me. Sometimes we discuss a research project that the class is working on. We always talk about the student's life, how his work is going, workplace challenges, and his plans after graduation. Then we discuss what is or is not working for the student in the program, and what adjustments might help.

These sessions are indispensable to the growth and evolution of the program. They have been the source of many innovations that otherwise would never have been considered. Seminal ideas for totally new courses have also come from these sessions. The appointments are popular with students, too, most of whom are more comfortable sharing via phone than e-mail. Don't be surprised if you come away from these interviews thinking, "I had no idea how cool these people are!"

5) Do Online What Online Does Best

Though considerable smoke is often blown around the issue, even the most ardent supporters of online courses will admit in private that online is a compromise between certain elements of quality and economic reality. It brings in tuition-paying students who otherwise would not make it to campus. It allows professors to teach more students than could fit in the biggest available room. It saves on the heating and air-conditioning bills. Still, no amount of e-mail or computer networking can take the place of face-to-face interaction between student and professor, or replicate the experience of a group of students settled in a circle in the library, enjoying each other's company while they hammer through a knotty problem set.

The only way to make up for what technology can't do well is to make maximum use of what it does exceedingly well, such as providing infinite rewind capacity. Each student in my courses gets about 15 hours of instructor-generated video demonstrations. The videos go far beyond what the textbook offers. Students tell me they watch these videos three and four times each. Some students like a sneak preview before they try the work themselves. Others watch after they have done the work to verify that they did it the most direct way. Still others work along with the videos every step of the way.

6) The Perpetual Best in Show Contest

After students hand in projects, I post the best work in the LMS for all to admire. I also archive the semester's best projects online for future classes. When a student is struggling for an idea or to understand what a project should look like, it often helps to give him a peek at some of the best work from previous semesters. CT

The only way to make up for what technology can't do well is to make maximum use of what it does exceedingly well, such as providing infinite rewind capacity.

Richard Rose *is the program chairman for instructional technology and design at West Texas A&M University.*

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Trendspotter

Automating Student Advising? Think BI

How to put advisers, faculty, students, and institutional planners on the same page. By Mary Grush

Many institutions use software to automate student advising. But Jay Crowthers, interim vice president for IT and CIO at **Mt. Hood Community College** (OR), says his college's new online advising system provides opportunities for more consistent reporting and institutional planning. Recently, Crowthers told *CT* about his plans to leverage the student advising system for business intelligence (BI).

CAMPUS TECHNOLOGY: How do students benefit from the new online advising system?

JAY CROWTHERS: We're coordinating student records and transcript data from the student information system with up-to-date catalog data, so students can build personalized academic plans using a convenient online tool called Agilegrad (*hobsons.com/agilegrad*). The college now allows—and may soon require—all degree-seeking students to build a road map when they enroll. The automated system basically says, "Tell us your goals. Based on your record, we'll tell you which courses to take in sequence, including which ones to take next." By keeping their goals in sight right from the start, and being able to share a detailed road map with their adviser online, students will achieve their degrees more quickly in most cases.

CT: What's different now for advisers or for faculty?

JC: We share advising duties between our faculty and our advising office. Before, faculty would notice that the information they were working with was not always consistent with the information in the advising office. Academic programs change from year to year to meet the needs of a changing student marketplace: How do faculty and advising staff keep track of all that? The online advising system has definitely helped. There has been a real groundswell of support for the system among our faculty, who are now using the same tool and accessing the same information as the advising office.


CROWTHERS

CT: Can you leverage the system for reports?

JC: Before, without a tool that could be shared across different stages of the advising process, some of the state reporting requirements fell through the cracks. Oregon—and I don't think this is unique to our state—is moving toward a funding model based on completion of certificates and degree programs in a timely fashion. Because we depend on state funding to balance our budget, it's important that we demonstrate the ability to help students stay on track.

CT: How can the system help institutional planners?

JC: There are several areas where the student-advising system touches other institutional functions and creates potential benefits for planners. We can now watch trends in degree planning using data from the new student-advising system—this gives us an opportunity to approach course scheduling more proactively in response to projected demand. In the future, data from the student-advising system could inform many other areas including facilities, recruitment, retention, enrollment management, e-portfolio development—the list goes on. The student-advising system can contribute significantly to planning in functional areas and to BI at the college.

CT: Will the advising system be increasingly leveraged for BI?

JC: In the long term, the system will become an important BI tool, helping us use the information that flows naturally from the student-advising process. But whether you look at specific functions that assist students or how to leverage information for institutional planning and reporting, it's still all about student success.

Students have more options for education now than they've ever had. Sometimes, with more options comes more confusion. The programs that are going to be relevant are those that really help a student set goals and show progress toward those goals, so that success builds on success and ultimately results in degree completion. **CT**

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