SPECIAL YEAR-END ISSUE

Your definitive ‘What Works’ guide to real-world technology implementation in the most vital tech areas for 2007

BEST PRACTICES IN...

› SMART CLASSROOM
› CONNECTIVITY
› ADMINISTRATIVE IT

December 2006
YOU ALWAYS HAD THE BRAINS. IT WAS THE TECHNOLOGY THAT WAS A LITTLE SCATTERED.

The HP BladeSystem c-Class with Insight Control Management.

The intuitive HP BladeSystem c-Class thinks just like you do — letting you monitor your infrastructure while helping to analyze your future needs. First, HP’s OnBoard Administrator gives you out-of-the-box setup and configuration combined with power, cooling and enclosure management. After that, the Insight Control software steps in to let you control the rest of your environment, locally or remotely. And thanks to the integrated Insight Display — our unique LCD screen — you can interact right at the source to manage, deploy or troubleshoot.

Simply plug in the HP ProLiant BL460c server blade, featuring Dual-Core Intel® Xeon® Processors, and you’ll get faster performance and versatility to support 32- and 64-bit computing environments. Use the HP BladeSystem c-Class for your campus and you’ll experience greater control over your time and resources.

Experience the HP BladeSystem and download the IDC White Paper “Enabling Technologies for Blade Management.”

Click www.hp.com/go/potential41
Call 1-866-812-9641
Visit your local reseller

Dual-Core is a new technology designed to improve performance of multithreaded software products and hardware-aware multitasking operating systems and may require appropriate operating system software for full benefit; check with software provider to determine suitability; not all customers or software applications will necessarily benefit from use of this technology. Requires a separately purchased 64-bit operating system and 64-bit software products to take advantage of the 64-bit processing capabilities of the Dual-Core Intel Xeon Processor. Given the wide range of software applications available, performance of a system including a 64-bit operating system will vary. Intel’s numbering is not a measurement of higher performance. Intel, the Intel Logo, Xeon and Xeon Inside are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries. The information contained herein is subject to change without notice. ©2006 Hewlett-Packard Development Company, L.P.
Contents

Best Practices
13 Smart Classroom >> Planning, building, funding, retrofitting, or just dreaming about ‘smart’ classrooms? Thirty-two best practices in tactics, strategies, and technology implementations will inspire your next project.

29 Connectivity >> Today, campus connectivity is all about advanced eLearning, ubiquitous computing, high-performance computing grid resources for researchers, next-gen student services, and much, much more.

43 Administrative IT >> ERP and student information systems may be obvious foci for administrative IT best practices. But maybe you haven’t thought about the impact of document imaging on disaster recovery planning, or laundry machines that alert students from cyberspace.

In This Issue
4 Welcome
6 Where to Find...
10 Letters
53 CT at the Show
54 CT Solutions
58 Shows to Know
The Birth of Your Next Initiative
The ‘smart’ classroom, connectivity, and administrative IT will lead your challenges for 2007. Grab some instant knowledge and start planning!

Since we introduced this special 101 Best Practices issue back in December 2005, we’ve come to see that the spark of a good idea is indeed a very powerful thing. All year long, we here at Campus Technology delve into the nitty-gritty of what makes a technology initiative work and return real benefits to its user community and its institution. We know that this kind of in-depth coverage is just what you need when you’ve got rudimentary plans on the table, or are considering implementing new technology or processes.

But for every tech plan you may have set before you, there are at least 10 other initiatives waiting in the wings—projects that in the coming year will enable deeper levels of learning or engagement, streamline connectivity, or facilitate administrative processes campuswide. Trouble is, you may not be thinking about those things yet. But you should: It will be your ability to keep fanning the flames of new ideas while your current ones come off the production line, that will keep your institution competitive with peer schools, and keep your student, faculty, and staff communities most productive.

That’s why, in this year-end issue, we depart from “drill-down,” and offer you instead 101 great ideas for your next technology initiatives. For 2007, that means 101 Best Practices in Smart Classroom, Connectivity, and Administrative IT—all to get you thinking, planning, and headed toward your next campus technology success. (Maybe next year, your new tech project will be our Best Practice number 102!)

So, glance at our table of contents to find each of the three areas we highlight for 2007; read from 1 to 101, or head to our “Where to Find...” index and resource guide on pages 6 and 8, to locate the precise area of focus you’re looking for. The “best practice” numeral will take you right to your most-needed information, but you can also scan this valuable resource guide to pinpoint institutions whose initiatives you may want to reference; technology vendors whose products you may wish to research; or tech vendors that are advertisers in this issue, and for whose products you may want additional information.

Finally, don’t miss our special CT Solutions selection this month (pages 54 to 56)—targeted at our three section focuses. And use our 2007 Shows to Know section (page 58) to get you to the industry and campus tech community conferences dedicated to our Big Three. All year long this special 101 guide, chock-full of “how they did it” references, will keep you thinking and planning ahead. Find us also on the web at www.campus-technology.com/bestpractices. CT

—Katherine Grayson, Editor-In-Chief

What have you seen and heard? Send to: kgrayson@1105media.com.
Participate in a
“Study of High-Resolution Imaging”
being conducted by

THE Journal
and Campus Technology

You may qualify for a Free Canon REALiS projector from this magazine.

For more information on this study, visit
www.campus-technology.com/projectorstudy
or www.thejournal.com/projectorstudy

Canon REALiS projectors, which are being used for this study, incorporate AISYS-Enhanced LCOS technology. This breakthrough allows teachers and students to display intricately-detailed, color-rich, “HD-like quality” images; ideal for science, graphic arts, CAD engineering, accounting (small text), and other disciplines.

If you’re interested in learning more about REALiS projectors, please visit www.canonprojectors.com

©2006 Canon U.S.A., Inc. All rights reserved. Canon and REALiS are registered trademarks of Canon Inc. in the United States and may also be a registered trademark or trademarks in other countries. IMAGEANYWARE is a trademark of Canon.
### Where to Find...

...topics, institutions, organizations, and companies — look them up by Best Practice item number!

#### SMART CLASSROOM TOPICS NO.
- Assessment ............................................... 22, 25
- Asynchronous threaded discussion .............. 2
- Classroom control systems ...................... 23
- Device security ....................................... 4
- Digital libraries/repositories .................... 3, 6, 24, 26
- Digital note-taking .................................. 12
- Digital textbooks/publishing .................. 24
- Digital video ...................................... 5
- Document cameras ................................ 31
- Document imaging .................................. 6
- eLearning ........................................ 26
ePortfolios ........................................... 22, 25
- Faculty development (FT) ....................... 13, 21
- Handheld devices .................................. 11
- Interactive learning tools ....................... 29
- Laptops ............................................ 30
- LCD monitors/panels ............................... 9, 20
- Learning/media centers ......................... 17
- Lecture capture .................................... 12
- Mediated interaction .............................. 2
- Mind mapping ...................................... 18
- Multi-user virtual environments (MUVEs) .... 2
- Networking ........................................ 23
- Personal response systems ................. 19
- Podcasting ........................................ 7, 10, 16
- Podia ............................................ 9, 23
- Presentation technology ......................... 27, 31, 9, 20
- Projectors ........................................ 27
- Smart buildings ..................................... 1
- Smart classroom management ................. 23
- Smart classroom planning ...................... 8, 20, 28, 32
- Smart phones ...................................... 11
- Supercomputing/High-performance computing 3, 4
- Tech refresh ....................................... 30
- Touchscreen monitors ........................... 20
- Video streaming .................................... 5
- Videoconferencing ................................ 2, 15

#### CONNECTIVITY TOPICS NO.
- ASPs/hosted services ......................... 54
- Assessment ........................................ 51
- Authentication ..................................... 64
- Cellular phones/content ......................... 64
- Centralized IT services ......................... 63
- Cyber infrastructure ............................. 63
- Database management ......................... 45
- Digital signage ...................................... 40
- Document sharing/collaboration ............ 37
- eLearning ........................................... 35, 39, 47, 49, 61
- E-mail services ..................................... 54
ePortfolios ........................................... 60
- File sharing ........................................ 35
- Grid computing .................................... 34, 41, 56
- Handheld devices ................................ 38, 44
- Information literacy ............................... 51
- Information sharing ............................... 53
- Interactive kiosks .................................. 59
- Internet ........................................... 66
- IP communications ................................ 46, 48
- Lecture capture .................................... 49
- Mobile computing ................................. 38, 50
- Network security .................................. 42, 45, 53, 58, 62, 64
- Network/bandwidth/e-mail monitoring ........ 55, 62
- Networking ......................................... 33, 55
- On-demand services ............................. 43, 63
- Online learning support ....................... 47
- Online student services ....................... 61
- Open source/standards ......................... 57
- PDAs ............................................. 38
- Peer to peer (P2P) ................................ 35

#### ADMINISTRATIVE IT TOPICS NO.
- Administrative systems ......................... 88
- Advancement ........................................ 101
- ASPs/hosted services ......................... 74, 80
- Assessment ......................................... 81, 93, 95
- Asset management ................................ 86, 87
- Authentication ...................................... 72
- Business intelligence (BI) ....................... 71, 93, 95, 98
- Business Intelligence (BI) support ............. 94
- Constituent relationship mgmt. (CRM) .... 81, 90, 99
- Content management systems ............... 99
- Data warehousing/mining ....................... 71, 93, 94, 95, 97, 98
- Decision-making .................................... 94
- Digital entertainment ............................ 74
- Disaster-recovery planning .................... 75, 99
- Document imaging ................................ 99
- eMarketing ........................................ 70
- Enrollment management ......................... 90
- Enterprise resource planning (ERP) ........... 68
- File sharing ........................................ 91
- Financial systems ................................ 89, 100
- Funding/finance .................................. 86, 96, 101
- Illegal/illegal downloads ......................... 74
- Internal marketing ................................ 97
- IT development ..................................... 97
- IT leadership ....................................... 84
- IT strategic planning ................................ 75, 88
- Network security ................................ 72, 91
- Network/bandwidth/e-mail monitoring ........ 91
- Object-oriented development ..................... 88
- Online admissions .................................. 98
- Online financial aid ............................... 80
- Online fundraising ................................ 101
- Online recruitment ................................ 69, 70, 77, 90, 98
- Online registration ................................ 82
- Online student services ....................... 78, 82, 83
- Open source/standards ......................... 79, 89, 92, 100
- Personalization ...................................... 70, 77
- Portals ............................................. 77, 80, 85
- Procurement ........................................ 96
- Request for proposals (RFPs) .................. 88
- Retention .......................................... 73
- Security/privacy/compliance .................... 87
- Student information systems (SIS) .......... 68, 73, 92
- Support ............................................ 76, 96
- Token authentication devices ..................... 72
- Video blogs ........................................ 69
- Wireless networks .................................. 76
- Workflow management ........................... 99

#### INSTITUTIONS NO.
- Arizona State University ......................... 54
- Ball State University (IN) .......................... 52
- Baruch College (NY) ............................... 50
- Baylor University (TX) ............................ 23
- California State University ..................... 51
- California State University-Chico ............ 64
- Calvin College (MI) ................................ 28
- Carnegie Mellon University (PA) ............ 55
- Central Michigan University .................... 42
- Charleston Southern University (SC) ....... 91
- City University of New York, The .......... 28, 50
- Collin County Community College District (TX) .......................... 61
- Colorado Mountain College ..................... 57
- Colorado Technical University .................. 4
- Columbia College Chicago ...................... 60
- Columbia University (NY) ...................... 78
- Community College of Southern Nevada ....... 40
- Coppin State University (MD) .................. 30
- Dartmouth College (NH) ......................... 72
- DePaul University (IL) .......................... 81
- Duke University (NC) ............................ 16
- Earhart College (IN) .............................. 6
- East Carolina University (NC) ................. 49
- Embry-Riddle Aeronautical University (FL) 14
- Flagler College (FL) .............................. 95
- Florida Community College at Jacksonville .... 82
- Florida State University ......................... 19
- Franklin & Marshall College (PA) ............. 69
- George Washington University (DC) .......... 62, 83
- Georgia College & State University .......... 10
- Goshen College (IN) ............................. 6
- Harvard University (MA) ......................... 2, 18
- Hostos Community College of CUNY ......... 38
- Indiana University ................................. 8, 53, 56, 89
- Indiana University-Bloomington ............... 56
- Iowa State University .............................. 85
- John Jay College of Criminal Justice (NY) .... 28
- Joliet Junior College (IL) ......................... 29
- La Salle University (PA) ........................... 77
- Lakehead University (WI) ....................... 96
- Louisiana State University ....................... 34, 53, 75
- Loyola Marymount University (CA) .......... 37
- Lynn University (FL) ............................. 79
- Macalester College (MN) ......................... 20
- Manchester College (IN) ......................... 6
- Milwaukee School of Engineering (WI) ....... 96
- MIT ............................................ 18
- New York University ............................... 46
- North Shore Community College (MA) ....... 70
- Northeastern University (MA) ................. 43
- Oakland University (MI) .......................... 9
- Ohio Northern University ......................... 74
- Ohio State University, The ...................... 63
- Ozarks Technical Community College (MO) .... 15
- Pittsburgh State University (KS) .............. 99
- Portland State University (OR) ............... 95
- Purdue University (IN) ........................... 51, 58, 63, 93
- Rensselaer Polytechnic Institute (NY) ........ 98
- Rice University (TX) ............................. 57
- Rio Salado College (AZ) ......................... 47
- Ripon College (WI) ................................ 96
- Roberts Wesleyan College (NY) ............... 13
- San Diego State University (CA) ............... 27
- San Joaquin Delta College (CA) ............... 68, 89, 92, 100
- San Jose City College (CA) ..................... 54
- Santa Clara University (CA) .................... 12
- St. John’s University (NY) ....................... 67
- Stanford University (CA) ......................... 41, 86, 87
- Stetson University (FL) ........................... 31
- Temple University (PA) ........................... 17
- Texas A&M University ............................. 95
- Tulane University (LA) ............................ 99
- UCL A ........................................... 51
- UMassOnline ........................................ 39
- Union University (TN) ............................ 101
- University of Akron (OH) ....................... 76
- University of Alaska ............................... 85
- University of California-Davis .................. 95
- University of California-San Diego ............ 64
- University of Central Florida ................... 95
- University of Cincinnati ......................... 90
- University of Illinois ............................. 94, 97
I build invisible roads. They must be able to handle massive loads, reroute data during peak traffic hours and remain virtually accident free. Dynamic Networking from the new AT&T enables mobile university environments with integrated wireless and fixed access options without compromising privacy and records. So Nora's staff can interact easily and safely from all corners of campus. To learn more about wireless freedom and mobility, go to att.com/edu.
Where to Find...

<table>
<thead>
<tr>
<th>ORGANIZATIONS</th>
<th>NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connexions</td>
<td>57</td>
</tr>
<tr>
<td>DSpace</td>
<td>57</td>
</tr>
<tr>
<td>JA-SIG</td>
<td>79</td>
</tr>
<tr>
<td>Kuai</td>
<td>89,100</td>
</tr>
<tr>
<td>Sakai</td>
<td>57,89</td>
</tr>
<tr>
<td>uPortal</td>
<td>79</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COMPANIES</th>
<th>NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absolute Software</td>
<td>4</td>
</tr>
<tr>
<td>Adobe</td>
<td>21,69</td>
</tr>
<tr>
<td>Aladdin Knowledge Systems</td>
<td>72</td>
</tr>
<tr>
<td>AMX</td>
<td>23</td>
</tr>
<tr>
<td>Apple</td>
<td>10</td>
</tr>
<tr>
<td>AT&amp;T</td>
<td>48</td>
</tr>
<tr>
<td>Authentic</td>
<td>64</td>
</tr>
<tr>
<td>Backstage Library Works</td>
<td>6</td>
</tr>
<tr>
<td>Blackboard</td>
<td>29,39,93</td>
</tr>
<tr>
<td>Bradford Networks</td>
<td>42</td>
</tr>
<tr>
<td>Brainstorm Networks</td>
<td>40</td>
</tr>
<tr>
<td>British Broadcasting Corp.</td>
<td>16</td>
</tr>
<tr>
<td>Burton Group</td>
<td>65</td>
</tr>
<tr>
<td>Canon</td>
<td>27</td>
</tr>
<tr>
<td>Citigx</td>
<td>11</td>
</tr>
<tr>
<td>Cingular</td>
<td></td>
</tr>
<tr>
<td>Cisco Systems</td>
<td>40,41</td>
</tr>
<tr>
<td>Collegiate Images</td>
<td>44</td>
</tr>
<tr>
<td>Crestron</td>
<td>32</td>
</tr>
<tr>
<td>Datatel</td>
<td>73,101</td>
</tr>
<tr>
<td>DCSnacks.com</td>
<td>83</td>
</tr>
<tr>
<td>Dell</td>
<td>34</td>
</tr>
<tr>
<td>Desire2Learn</td>
<td>63</td>
</tr>
<tr>
<td>Digitech Systems</td>
<td>99</td>
</tr>
<tr>
<td>DyKnow</td>
<td>29</td>
</tr>
<tr>
<td>Eilo</td>
<td>31</td>
</tr>
<tr>
<td>ePortaro</td>
<td>60</td>
</tr>
<tr>
<td>Epson</td>
<td>32</td>
</tr>
<tr>
<td>Facebook</td>
<td>60</td>
</tr>
<tr>
<td>FileMaker</td>
<td>22</td>
</tr>
<tr>
<td>Friendster</td>
<td>60</td>
</tr>
<tr>
<td>Gateway</td>
<td>30</td>
</tr>
<tr>
<td>Google</td>
<td>54,66</td>
</tr>
<tr>
<td>Hewlett-Packard</td>
<td>85</td>
</tr>
<tr>
<td>Hitachi</td>
<td>9</td>
</tr>
<tr>
<td>Hobsons</td>
<td>90</td>
</tr>
<tr>
<td>Horizon Wimba</td>
<td>39</td>
</tr>
<tr>
<td>IBM</td>
<td>56,57</td>
</tr>
<tr>
<td>Jenzabar</td>
<td>60,95,96</td>
</tr>
<tr>
<td>Mac-Gray</td>
<td>78</td>
</tr>
<tr>
<td>Microsoft</td>
<td>95</td>
</tr>
<tr>
<td>Mindjet</td>
<td>18</td>
</tr>
<tr>
<td>MySpace</td>
<td>60</td>
</tr>
<tr>
<td>NEC</td>
<td>20,67</td>
</tr>
<tr>
<td>Neon Software</td>
<td>55</td>
</tr>
<tr>
<td>NextG Networks</td>
<td>52</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ADVERTISER/URL PAGE</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ajump</td>
<td>11</td>
</tr>
<tr>
<td>Aruba Wireless Networks</td>
<td>17</td>
</tr>
<tr>
<td>Atomic Learning</td>
<td>19</td>
</tr>
<tr>
<td>AT&amp;T</td>
<td>7</td>
</tr>
<tr>
<td>AVST</td>
<td>34</td>
</tr>
<tr>
<td>CDW-G</td>
<td>24,25</td>
</tr>
<tr>
<td>Dataatel</td>
<td>12</td>
</tr>
<tr>
<td>Desire2Learn</td>
<td>56</td>
</tr>
<tr>
<td>Desire2Learn.com</td>
<td></td>
</tr>
<tr>
<td>Hewlett-Packard</td>
<td>32,39</td>
</tr>
<tr>
<td>hp.com/gp/at41</td>
<td></td>
</tr>
<tr>
<td>High-Resolution Imaging Study</td>
<td>5</td>
</tr>
<tr>
<td>Intellwork</td>
<td>28</td>
</tr>
<tr>
<td>Intellworks.com</td>
<td>22</td>
</tr>
<tr>
<td>LG Electronics</td>
<td>33</td>
</tr>
<tr>
<td>Lumens</td>
<td>21</td>
</tr>
<tr>
<td>mylumens.com</td>
<td>21</td>
</tr>
<tr>
<td>NEC Unified Solutions</td>
<td>37</td>
</tr>
<tr>
<td>Numerics Corporation</td>
<td>18</td>
</tr>
<tr>
<td>Panasonic</td>
<td>9</td>
</tr>
<tr>
<td>panasonic.com/projectors</td>
<td></td>
</tr>
<tr>
<td>Sonic Foundry</td>
<td>33</td>
</tr>
<tr>
<td>sonicfoundry.com/lecture</td>
<td></td>
</tr>
</tbody>
</table>

This index is provided as a service. The publisher assumes no liability for errors or omissions.
Projections so involving, students will sit up and take notice—that’s the beauty of Panasonic LCD and DLP® projectors. Engineered for top performance and lasting durability, Panasonic projectors offer sharp, powerful images, thanks to our innovative Daylight View 2 Technology. And our new Premium Services deliver maximum uptime and a lower total cost of ownership.

Panasonic projectors. Make your subject matter.

PANASONIC ANNOUNCES THE END OF SLOUCHING.

Projections so involving, students will sit up and take notice—that’s the beauty of Panasonic LCD and DLP® projectors. Engineered for top performance and lasting durability, Panasonic projectors offer sharp, powerful images, thanks to our innovative Daylight View 2 Technology. And our new Premium Services deliver maximum uptime and a lower total cost of ownership. Panasonic projectors. Make your subject matter.

Panasonic ideas for life

Go to panasonic.com/projectors or call 888.411.1996 for this month’s special offers.
“The academic institutions that hopped in bed with Google may have done us all a great disservice.”

Google Book Search: Access at What Price?  
Regarding Richard Ekman’s “The Books Google Could Open” (October 2006): As a head librarian dealing with rising information costs, I’ll not go to bat for the publishers; on the other hand...all stories have two sides, and this is one. Plain fact of the matter is that Google [www.google.com] is in business for only one reason — profit. It’s too late now, but the academic institutions and libraries that hopped in bed with Google may have done us all a great disservice. They acted unilaterally, in a community (which includes their own publishing houses) that usually acts collaboratively. It was done without thinking through all of the potential consequences of for-profit control of access, search, and hosting. This type of project could have been handled through a nonprofit entity like the Online Computer Library Center [www.OCLC.org], and could have been constructed to accommodate, at least in part, some of the legitimate concerns of publishers and authors.

We’re now potentially facing a very ugly future when the devil’s bargain with Google will need to be paid. They’re in control, when we should be. As a librarian, I will resist to the bitter end any universal access system for higher ed that is based on revenue from advertising—however benign and lofty the ostensible goals. That will compromise us much as the political system has been co-opted. I’m not anti-business, but I am suggesting that democracy is going to need an unbiased commons to sustain itself. That should be in higher education. The Google collaboration challenges that very premise.

Rod Henshaw  
Dean, Cowles Library  
Drake University

From Richard Ekman: Google Book Search is hardly perfect, and the profit motive of the company could, as you suggest, spin out of control...but so far, Google has been quite public-spirited in this initiative. Similarly, most of the universities that made arrangements with Google did something less than offer universal access to individuals outside the university, but nonetheless went well beyond what was in their narrowest self-interest. Natural experiments often take place incrementally, and this one is no exception. I share your hope that one day the goal of universal access will be achieved, but am wary of scenarios that don’t recognize that the dissemination of scholarly work has real costs. If a university press did not exist, we would surely end up inventing something that looked very much like one. If we had to pass along to end-users the full costs of an electronic dissemination system, many people would be surprised how quickly the costs of transactions add up. A government-subsidized system of scholarly communication that is not required to meet a “market” test of quality control and volume of use/sales/citations would surely be of lower quality than one that operates in a competitive market.

The big question for me is what limits are tolerable and reasonable, and beyond what limits lies genuine price-gouging. That question leads me to be more skeptical of the pricing practices of both the commercial science-journal publishers and the mass-market book publishers than of the financial model for Google Book Search, and it doesn’t diminish my sensitivity to the fragile economics of university press publishing of scholarly monographs and specialized journals in fields with small subscription bases.

Wiping Out Rogues  
I read with interest “A Rogue By Any Other Name” (October 2006), and wondered whether your comments or the articles in that issue would mention solutions to rogue access points such as the one we use here at Point Loma Nazarene University. Since you spoke about this problem as if it were an unavoidable pest everyone has to deal with, I wanted to make sure you were aware that some of us don’t even face that problem anymore. About a year ago, we replaced our wireless access points enterprise-wide with gridpoint technology from Aruba [www.arubanetworks.com] connected to our Cisco [www.cisco.com] network. Using this strategy, we only need to plug in a new gridpoint to our wired network and an Aruba management server detects and configures it automatically, adjusting neighboring gridpoints to optimize the coverage of the grid. If a rogue access point is plugged in, the port to which it is attached is disabled, rendering the device useless. If a campus member purchases a compatible gridpoint device on his own and plugs it in, it will be added to the grid and managed as if it were a university-deployed device. Any devices attaching wirelessly to the grid are granted access based on policies corresponding to the device, not to the gridpoint. In this way, a single gridpoint can provide access to a public limited-access wireless network as well as to a privileged network for recognized and authorized devices. The bottom line: At Point Loma, we never think about rogue access points, and we don’t have to manually configure individual access points for performance or security.

Carey Morgan  
Systems Analyst, Information Technology Services  
Point Loma Nazarene University
REDUCE YOUR PC MANAGEABILITY COSTS WITH A SINGLE STABLE IMAGE. NVIDIA Business Platform™ Certified PCs lower total cost of ownership with NVIDIA Unified Stable Image. Combining graphics, networking, storage, and core logic drivers into a single image and with support across PC configurations and platform generations, NVIDIA Unified Stable Image simplifies deployment and maintenance of PCs in your organization. Streamline IT infrastructure management processes and increase efficiency in end-user support with Ajump NBP1005 Business Platform.

Order online at www.ajump.com/nbp
or call us toll free @

AJUMP.com 877-692-5867

For Canada, please visit www.ajump.ca or toll free 866-462-5867

Fully Customizable  Name Brand Components  3-Year Warranty Available

For more information visit: www.amd.com/csip or www.nvidia.com/nbp
As a leading provider of fully integrated enterprise information management solutions for higher education, Datatel® is helping hundreds of colleges and universities across North America reach their institutional goals.

Datatel’s exclusive focus on higher education gives us a unique understanding of your business. And our open-architected Colleague® enterprise resource planning (ERP) system, software technology, and professional services are transforming the way institutions like yours serve constituents.

Working closely with our clients, we are building environments where users have complete access to the information and resources they need from IBM hardware and software platforms, at their fingertips, without concern for their source. It's what we call The ActiveCampus Experience — the definitive state of personal productivity, collaboration, and institutional effectiveness in higher education.

To learn how Datatel can help your institution achieve The ActiveCampus Experience, please visit www.datatel.com today, or call 1-800-DATATEL.

Datatel is an IBM Business Partner who has demonstrated success in delivering solutions to meet the needs of higher education. Datatel Colleague runs on IBM on demand infrastructure. This proven technology is tailored to address the business and IT needs of institutions like yours. To find out how you can leverage IBM’s on demand technology for success in higher education, visit www.ibm.com/software/data.

Datatel, Colleague, and ActiveCampus are trademarks or registered trademarks of Datatel, Inc. The IBM logo and the IBM Business Partner emblem are trademarks or registered trademarks of International Business Machines Corporation in the United States, other countries, or both. All other names, products, and services mentioned are the trademarks or registered trademarks of their respective owners.
hat makes a classroom “smart”? Presentation technologies such as projectors, document cameras, and LCD panels clearly fit the bill, but when you consider other technologies for teaching, learning, and developing content, the possibilities become limited only by the boundaries of an institution’s innovation. In this opening section of our special 101 Best Practices guide, you’ll find out how colleges and universities are bringing new kinds of learning into the classroom, from the nuts and bolts of hardware configurations, to technologies that are engaging students in novel ways. Use the links provided to find more in-depth information in original articles and newsletters, and on vendor websites. These 32 “smart” ideas just might be the inspiration you need to get your own smart classroom initiatives off the ground. Read on!
MEDIATING INTERACTION

As the Timothy E. Wirth Professor in Learning Technologies at Harvard University’s (MA) Graduate School of Education, Chris Dede is at the forefront of change in technology for teaching and learning. “I teach a class every fall with seven different kinds of technology for mediated interaction,” says Dede. “As examples, we use asynchronous threaded discussion, internet-based videoconferencing, and synchronous interactions in a multi-user virtual environment (MUVE)—a virtual place where people interact with digital avatars, agents, and artifacts.” His students also use a form of groupware, for application sharing and collaborative work on documents, images, or other types of design. The technologies are helping students succeed: “Many students who are silent in classroom discussions find their voice and participate actively in different flavors of mediated interaction,” he says. The key is sticking to readily available technologies. “I could offer a course that uses a lot of exotic technologies,” Dede explains. “But there would be no point: What would the students do when they left and couldn’t use any of the technologies that we had experienced together in class?”

SHARING AUDIO/VIDEO CONTENT

The DigitalWell Project at the University of Washington tasked itself with creating a digital repository of big, bulky audio and video files, with the ability to collaborate with other academic institutions. The initiative began when technologists set out to build a system to catalog audio broadcasts from the school-sponsored KEXP radio station, as well as video broadcasts from the UWTV television station and from campus research programs. “D-Well” was unveiled publicly in fall 2005, and thanks to a proprietary underpinning system called the Storage Resource Broker (SRB) and a middleware system built by the San Diego Supercomputer Center at the University of California-San Diego, the system is interoperable with other digital libraries across academia. “We’re really hoping that we can communicate with just about any digital library in the world,” says Jim DeRoest, director of streaming media technologies with the Video, TV, and Technologies group. With the help of this technology, UW already has been able to trade video content with the University of Queensland in Australia, and the Forestry department has inquired about collaborating with the University of São Paulo in Brazil, to digitize video content about old-growth forests and how forest fires start.

SECURING LOANER LAPTOPS

At Colorado Technical University, a solution from Absolute Software (www.absolute.com) is protecting the school’s investment in a loaner tablet PC initiative. ComputraceComplete allows IT staff to monitor who is using the computers,
what software and hardware changes are performed, and where the equipment is located, helping the school ensure that all computers are returned on time at the end of a lease. ComputraceComplete came in handy recently when one Colorado Tech student dropped out of the school but kept a loaner laptop in his possession. University staff filed a police report and contacted Absolute Software’s recovery team. The team established “contact” with the laptop over the internet, verified that the stolen machine was indeed in the student’s home, and instructed the computer to call in every 15 minutes. Local police were then able to recover the machine; the entire process, from the laptop being reported stolen to recovery by police, took just three days.

ACCESSIBLE LEARNING MATERIALS
Using videotaped lectures to practice American Sign Language (ASL) used to be a pretty tiresome process for hearing-impaired and other students at the University of Rochester (NY). In order to access the videos, students had to trek to the campus library, reserve an audio/visual station in the media center, take out the appropriate tape, and watch it right then and there. In the spring and summer months, the process was manageable but inconvenient. In winter, however, with lake-effect snow blowing off Lake Ontario, the journey to and from the campus library became possible only for the intrepid.

But last year, digital video revolutionized the ritual for Rochester’s ASL students. With the help of the Clabs digital video solution from Cdigix (www.cdigix.com), the school has digitized the entire library of videotapes and offered it online through a portal of digital media that includes movies, MP3s, and more. Lisa Brown, manager of the school’s Educational Technology Center, says that today, students can practice hand signals from the privacy of their own dorm rooms, all with a few clicks of a mouse. “Now, if a student wants flexibility in accessing this information, he can get it whenever he wants it.”

A DIGITAL PEACE
Three peace-minded Indiana schools—Goshen College (a Mennonite institution), Earlham College (Quaker), and Manchester College (Brethren)—banded together to digitize local archives centered on peace studies. Tom Kirk, library director and coordinator of information services at Earlham, explains the effort, dubbed the Plowshares Project: “Each campus is selecting materials from its own archives that reflect the denominations’ work in the areas of peace and social justice.” Over the course of eight months of image scanning in 2005 (mostly performed by Backstage Library Works; www.marclink.com), the schools added thousands of images, pages, and documents from just about every era since the peace movements began. By the time the project launched formally in January 2006, it boasted 40,000 items, and has added even more since then.

Throughout the development of Plowshares, the schools faced challenges ranging from copyright issues to the need for quality metadata; yet, the potential benefits to future learners are undeniable. Ultimately, says Goshen Library Director Lisa Guedea Carreño, “These are distinctive collections. No matter what we have to go through to get them online, it’s important they’re up there so everyone can use them down the road.”

KEEPING IT SIMPLE
In response to student demand, the University of Michigan’s School of Dentistry began videotaping lectures and linking in instructors’ slides. Then administrators looked at access logs and conducted focus groups, in order to study students’ use of the materials. The results were surprising: “Two-thirds of the students preferred the audio over either the video or the presentation slides,” recalls Lynn Johnson, director of dental informatics. “They already had the slides; the students themselves had asked their teachers to release them.”

After determining that audio was the key issue, the next step was how to effectively capture and distribute it. “We put a computer in the back of the lecture halls,” Johnson explains. “A student starts a script at the beginning of the class, and the lecture is automatically recorded through the PA system and fed to the mixer.” At the end of the lecture, the student enters the metadata—the name of the class and instructor—and the file is immediately uploaded to the school’s area on iTunes.

“We didn’t start out to do podcasting at all, but it succeeded because it was helpful to everybody,” says Johnson. “I still marvel that, in the end, this was such a simple project.”

MAINTAINING PERSPECTIVE
When building “smart” classrooms, facilities planners at Indiana University include a variety of stakeholders on every planning committee. Garland Elmore, deputy CIO and associate...
SMART CLASSROOM

VP for teaching and learning information technologies, says that before IU begins a project, representatives from the University Architect’s Office, Physical Plant, IT, Building Maintenance, Housekeeping, and faculty typically are consulted. Including a wide range of perspectives is important, Elmore stresses. For example, one smart classroom improvement plan at Indiana called for changing the tile floor outside some of the rooms. The architects had selected a textured tile Elmore liked, but Housekeeping, surprisingly, had important objections. The staffers there insisted, “As you walk on it it’s fine, but if you push a mop bucket across it, it sounds like a DC-3 on the runway. You’ll have to close the doors of every classroom when we push a trash bucket down the hall.” Seemingly insignificant observations by stakeholders can turn out to be crucial. www.campus-technology.com/article.asp?id=18185

ANNOTATED PRESENTATIONS

This summer, Oakland University (MI) installed 28 Hitachi (www.hitachi.us) T-17SXL StarBoards as part of new presentation workstations in classrooms and labs across the campus. The pen-driven 17-inch LCD panel allows a presenter to face the classroom while having the screen’s contents projected onto any size screen. The T-17SXL software captures written notes (using a pen-input device with full mouse function capabilities) on top of presentations in any format, and allows conferencing of up to 50 StarBoard systems for distance learning capability. George Preisinger, of Oakland’s Classroom Support & Instructional Technical Services department, sees the system’s potential not only for distance learning and web-based instruction, but also for more traditional learning content. “Even the more traditional ‘attended’ courses commonly feature a web-based supplement with quizzes and course notes online,” he notes. “It’s a great benefit for our students to have the instructor’s handwritten notes on top of the original documentation.”

IPods INSIDE AND OUT

Services such as Apple’s (www.apple.com) iTunes U have established podcasting as a powerful new way to broadcast educational content outside of the classroom. But at Georgia College & State University, iPods are making a difference in the classroom as well. Take, for example, the Department of Music and Theatre, which had foreign language speakers come in to do recordings that are helping the school’s chorus. “We’re singing in Korean, Portuguese, and many other languages,” says GC&SU student Jill Albano. “Now we can listen to the dictation, and make sure that we’re pronouncing everything correctly.”

The secret to GC&SU’s iPod success? Administrators take great care to evaluate potential technologies before putting them into practice. The first step toward deciding which initiatives to pursue: assembling a group from all areas of the campus—admissions, residence halls, library, and academic areas—to discuss the possibilities of a technology. “If you just give people technology, a lot of the tools will sit on their desks because they don’t yet have a good reason for using them,” emphasizes Anne Gormly, VP and dean of faculty. “You’ve got to have some values that are driving the use of technology: How does this improve the teaching and learning? How does this help us create those graduates that we envision in our mission?” www.campus-technology.com/article.asp?id=18001

GOOD CHEMISTRY

In a recent pilot, 120 Wake Forest University (NC) students were given either a Cingular Siemens SX66 Pocket PC (www.cingular.com, www.siemens.com), or a Sprint Nextel 6600 (www.sprint.com). The university’s questions as they conducted the pilot included: How much would students use the smart phones? How would instructors incorporate them into classes?

In his first-year chemistry course, Professor Robert Swofford developed three ways to use smart phones as a learning tool; all were particularly effective in enhancing communication between instructor and student. First, to encourage students to bring the devices to class, he began each class with a one-question quiz, awarding students a small amount of credit for responding. Students sent their responses (with their names included) to his computer via the wireless connection, where he could tabulate them instantly. Second, he used the devices’ wireless connectivity to collect immediate student feedback throughout the lecture. Several times during each class, he paused and asked students to “vote” electronically on whether they understood a concept. Since votes were anony-
Secure Users, Not Ports

Imagine having your corporate resources move with you, securely, everywhere you go. In public places like airports, hotels, coffee shops and cafes, at home, or in a partner’s office.

With Aruba Wireless Networks’ Mobile Edge Architecture, it’s a reality. Our identity-based technology secures users and ports. Your wireless connection is more secure than your wired connection, and you are more secure wherever you are, even outside your office.

Find out more about Aruba’s Mobile Edge solutions at www.arubanetworks.com/ct

Aruba’s Mobile Edge moves.
mous, students responded frankly, allowing him to immediately decide whether to repeat a point or continue. Third, he encouraged students to use the devices after class, while still in the classroom, to send post-class feedback. The amount of feedback was surprisingly high, he says, which he attributes to the immediacy the devices allow. www.campus-technology.com/article.asp?id=18187

LISTEN AND LEARN

At Santa Clara University (CA), technology is freeing students from madly tapping out notes in the lecture hall. A lecture capture solution from Tegrity (www.tegriy.com) includes a special digital pen for noiselessly taking notes on regular paper during class; the system digitizes students’ handwritten notes as they are taken down, then automatically synchronizes the notes with the recorded instruction. Later, in front of a computer, students can view their notes online, exactly as they were written in class, and can click on any notation to hear the instructor explain a particular concept.

According to Santa Clara CIO Ron Danielson, the solution works well because it means that students don’t need a computer in class. “The students can simply come in to class and use the [Tegrity] pen to take notes as they usually do.” Danielson, who also teaches, likes the fact students can actively listen to lectures instead of transcribing. The technology, he asserts, “is a great learning tool.” www.campus-technology.com/article.asp?id=18187

FACULTY HELPING FACULTY

When considering the costs of configuring “smart” classrooms, it’s important to look beyond the cost of maintenance, hardware, and furniture, and remember the soft costs as well. Peter Saxena, CIO of Roberts Wesleyan College (NY), found that as professors at the school started using smart classroom technology more heavily, there was a need for more support staff. But how to increase training resources without impacting costs? Saxena says his department found it helpful to enlist a faculty member to provide the
“Today I learned all about cookies and spam. Not bad for a food science prof.”

You’re an expert in your field. You shouldn’t have to be an expert in technology as well. Now you don’t have to be. Atomic Learning online software training and support provides just-in-time answers to your “how do I do that?” software questions. It’s like having your own software tutor – 24/7. It’s perfect for professional development and student training. So you can spend more time doing what you do best.

Learn more. Do more. Be more.
Try Atomic Learning — FREE
Go to AtomicLearning.com/highed
training, rather than someone from IT. An adjunct faculty member, for example, could effectively teach the faculty how to run the new classroom equipment, explains Saxena, because as a peer, an adjunct “could speak to them in an academic language as opposed to an IT trainer language.”

‘SUPER’ RESEARCH IS ‘SMART’

At Embry-Riddle Aeronautical University (FL), a new supercomputer has revolutionized research technology. With the 131-node, 262-processor Beowulf cluster, Mike Hickey, associate dean of the College of Arts and Sciences, is running simulations of acoustic-gravity waves propagating through the upper portions of Earth’s atmosphere. These waves ultimately impact flying conditions, which is why the research is of such value to a school like Embry-Riddle.

Such simulations used to take three or four days to run; with the power of the new machine, however, Hickey can run them in a matter of hours. Moreover, researchers in other departments are also able to tap into Beowulf’s processing power to speed up projects of their own. “Especially at an engineering school like ours, there’s a lot of numerically intensive simulation work on campus,” says Hickey. “The best way around [the demand for so much simultaneous simulation work on one campus] was to try and get a computer that serves everybody’s needs.”

REAL-TIME PALEONTOLOGY

What could be better than technology that allows students to observe, from their own classroom, actual field research in real time? Ozarks Technical Community College (MO) and MOREnet, the Missouri Research and Education Network (www.more.net), are digging deep into the application of videoconferencing to learning and research. They’ve installed 1,600 feet of armored, direct-burial fiber-optic cable in the Riverbluff Cave in southwest Missouri, and have networked a field house where work is being done on discovered artifacts. Those finds include some of the oldest Ice Age fossils in North America. Polycom (www.polycom.com) videoconferencing equipment will bring the field science into classrooms at various institutions around the state, while protecting the cave from some of the disturbances caused by human visitors.

RADIO AS LEARNING CONTENT

In a small pilot project begun in fall 2005, Duke University (NC) worked with news radio publisher Public Radio International (www.PRI.org) to create a model for making relevant radio content available to universities. “We said, if [students] are carrying iPods and PDAs and using them all the time, well, radio is all about audio,” recalls Lynne O’Brien, Duke’s director of the Center for Instructional Technology. “So how can we make that relevant?” With the help of PRI, the school is examining issues such as how to make specific radio content available for selective download, what content should be offered, and what faculty and students might do with such content.

O’Brien says short clips of timely news programming seem most useful. Faculty members have used specific interviews tied to a subject under discussion; writing professors have had students listen to radio content about specific books, for example; and journalism instructors have found various broadcasts...
Lectures become interactive show and tell sessions with **Lumens Digital Visual Presenters**

- As easy-to-use as 1-2-3
- High-quality digital XGA input and output – no more fuzzy images
- 12X optical zoom with microscope mode will show the finest details
- 20 frames-per-second captures life-like images
- Optical image rotation 90/180/270°
- 80-page internal picture storage and CF Card for additional storage
- Built-in lightbox for film and slide presenting
- Cold-cathode light source lasts minimum 20,000 hours
- Fully integrated via USB with interactive whiteboard for PC and Mac platform
- Small-unit footprint, largest capturing size in its class
- 5 year bumper-to-bumper warranty
- Best price/performance ratio of any product in its class

**MODEL** | DC80 | DC153 | DC160 | PS400 | PS600 | CL500
---|---|---|---|---|---|---
**MSRP** | $799 | $899 | $1295 | $1795 | $2195 | $4500

866-600-0988 toll free or www.mylumens.com

Lumens is an ASUS company, the world's largest computer motherboard company
SMART CLASSROOM

useful. Foreign language programming is also of interest, via the British Broadcasting Corp. (www.BBC.co.uk). www.campus-technology.com/article.asp?id=18187

NEW LEARNING SPACES
Temple University’s (PA) TECH Center (TECH stands for Teaching, Education, Collaboration, and Help) opened last February. The 75,000-square-foot facility (said to be the largest of its kind in the US) provides a variety of workspaces to enable students to work collaboratively or individually. Resources include: a student computer center with up to 600 fixed workstations and 100 wireless loaner laptops; a 24-hour help desk for students, faculty, and staff; specialized labs for video editing, graphic design, music composition, and software development; a faculty wing with a Teaching and Learning Center and Instructional Support Center; access to 150-plus software packages; a wireless internet lounge; collaborative learning spaces; and cable TV and music delivered right to the desktop. More than 38,000 students made use of the center in the first two weeks. www.campus-technology.com/article.asp?id=18008

MAPPING THE MIND
The mind doesn’t always work in a linear fashion; hence the interest over the years in “mind mapping,” a technique in which ideas and words are sketched out as interrelated items in a diagram. While mind maps have been drawn by hand for years, Mindjet’s (www.mindjet.com) MindManager digital mind-mapping tool brings the method to the computer. And at the Harvard-MIT (MA) Division of Health Sciences and Technology, MindManager is helping make complex learning content more manageable. Dava Newman, professor of aeronautics, astronautics, and engineering systems, is using the program to deliver interactive lectures, incorporate student questions and feedback in real time, and provide an enhanced learning environment. She integrates visual maps with lectures on creativity, for example, including learning objectives and an outline of the lecture. Because she uses a tablet computer, she can display a mind map in class, then mark it up during the lecture. All of Newman’s lecture materials, complete with the notes she adds in class, end up on the web and are available first to students, then later to the public, through MIT’s OpenCourseWare program. www.campus-technology.com/news_article.asp?id=18786&typeid=156

TOOLS FOR EFFECTIVE PRS
At Florida State University, personal response systems (aka PRS or “clickers”) are used in the classroom to engage students in learning and provide instructors with immediate feedback. (Students answer a few questions per class period from questions embedded in the class PowerPoint presentations.) To encourage faculty to incorporate PRS in the classroom, training for use of the systems is provided via a series of instructional videos created by Joe Calhoun, lecturer in the Department of Economics and assistant director of the Stavros Center for Economic Education. This approach, used in place of standard face-to-face workshops, lets faculty review the materials as many times as needed, at their own pace and convenience. A “how-to” video is provided for students and can be linked to/from an instructor’s website. www.campus-technology.com/article.asp?id=19481

WEIGHING DESIGN PRIORITIES
At Macalester College in St. Paul, MN, a project involving the outfitting of a data statistics exploration classroom (the brainchild of DeWitt Wallace Professor of Mathematics and Computer Science Daniel Kaplan) demonstrated the value of careful planning and the inclusion of input from users. The professors felt strongly that putting standard LCD monitors in front of each student would obscure sightlines and prevent students from interacting effectively with the professor or with each other. The technology project managers evaluated the ergonomic relationships between users, furniture, and technology, and in the end, chose NEC (www.nec.com) 15-inch LCD monitors and small Wacom (www.wacom.com) touchscreen monitors for the student workstations. Barron Koralesky, associate director for academic technology services, explains, “We chose these monitors because all the others had higher stands or larger bezels. Now, the faculty members are happy and the room is booked solid every class day.” Demand for teaching and learning in this type of lab has also increased campuswide since the room was installed. www.campus-technology.com/article.asp?id=18571
TAKING FACULTY TO TACC
At the University of Utah, the Technology Assisted Curriculum Center (TACC) helps faculty members gain a better understanding of technology and incorporate it into their lesson plans. The center—part of the university’s library—employs more than 40 librarians to help educators get comfortable with technology. In some cases, this is as simple as showing professors what kinds of databases they can make available for a particular class. In other cases, the librarians help educators build syllabi around one-of-a-kind software.

In addition, TACC Director Alison Regan says the center provides workshops for faculty members three times a year. These workshops teach educators how to use everything from Adobe’s Photoshop and Dreamweaver (www.adobe.com), to software that combats plagiarism. “We provide them with whatever kind of technology support they need,” Regan says. “They have questions; we have answers.”

Most recently, Regan says the office added a streaming media division, designed to help teach faculty members how to digitize video and stream it over the internet.

FOR THE LEARNING RECORD
At the University of Texas-Austin, Peg Syverson, associate professor in the Division of Rhetoric and Writing, has developed a comprehensive ePortfolio system that moves the learning record into a standalone application that UT faculty and educators at other schools can download for free and use at their convenience. The professor created the application with FileMaker Pro from FileMaker (www.filemaker.com), and named it Learning Record Online.

In a nutshell, the product is a freeware relational database that stores the most current version of a particular file. Teachers input course information, and students, in turn, submit the most current copies of their assignments. The instructors make comments in the files and upload the comments. Students then import those comments into their versions and proceed accordingly. Educators can see the observations students have been keeping for the duration of the process.

Behind the scenes, teachers simply download the standalone application, input the course information, and make it available for students. To date, more than 7,000 students in 14 schools are using the tool. “Don’t think of this as a buffet for the masses, think of it as a Big Mac: substantial, portable, and cheap,” says Syverson. “I think of it as a small, elegant implementation that does one thing very well.”

ENHANCING DIGITAL DOCUMENTS
The University of Virginia, which houses one of the most respected digital libraries in academia, combined its Etext Center and Rare Materials Digital Services Center into a unified Digital Research and Instructional Services department. The new department contains everything from electronic maps
You’ve got an institution to look after.
(Let us custom configure your technology for you.)

Not only is CDW•G a resource for great technology, we also offer extensive custom configuration services, so your systems are ready to go the moment you get them. It’s all meant to save you time, money and valuable resources. So the next time you need configuration services, turn to the experts. Turn to CDW•G.

Configuring Your System, To Your Specs
Every day, 2,100 systems are custom configured, as we make use of our 24,000-square foot state-of-the-art configuration center. Environmentally-controlled and ISO 9001:2000 registered, we’re set up to handle anything you need. Large or small, simple or complex, you name it and we can do it.

Imaging Any Way You Need It
Save time and resources by having us preload third-party software, as well as transfer any customized OS or software setting to new computers. We can even custom-create an image unique to your business and your needs.

Tracking Technology Assets
CDW•G can tag all of your assets, then provide your institution with a customized extranet to identify and track products quickly and easily. You can search by order number, asset tag ID, manufacturer or even create custom fields. Whatever works best for you.

Restoring Disks and Peace of Mind
We help you avoid disaster before it hits by creating custom restore disks to ensure rapid backup in emergency situations. From servers to PCs to PDAs, we can create restore disks that reduce downtime when the unexpected happens. And it often does.
to social science data sets, journal articles to book chapters. Works in this new department are much more than just electronic copies of physical documents; all of the pieces have been digitized and marked up by certain scholars to enhance the original content. Donna Tolson, director of outreach and instructional services, says the approach makes learning so easy that students don’t even realize they’re doing it. “The medium is now so engaging,” she explains (referring to age-old textbooks as “useful but dry” to most students), “it allows you to access this information in many more multifaceted ways than the printed book has allowed over time.”

www.campus-technology.com/article.asp?id=18438

ASSESSING LEARNING OUTCOMES

Iowa State University’s "eDoc" ePortfolio system is helping students take a bigger role in their professional development, as well as helping to mitigate the pressure from outside agencies for departments to demonstrate competence in learning outcomes. One example: The Food Science and Human Nutrition department uses electronic portfolios for all of its students, in order to track student competencies against pre-established learning outcomes from the American Dietetic Association (www.eatright.org). Dietetic interns are required to note in their portfolios when certain outcomes are accomplished.

“The key idea was to custom-build departmental and general ‘themes’ to meet each department’s requirements,” says Pete Boysen, senior systems analyst in the IT Services department, adding that students in the Educational Leadership & Policy Studies and Mathematics Education departments track performance against similarly pre-established learning outcomes. “The customized approach eDoc provides has given us the flexibility to meet all of these needs.”

www.campus-technology.com/article.asp?id=19135

eLEARNING FOR THE PUBLIC

The University of Texas holds vast and diverse library and museum collections, research and scholarly materials, and many other knowledge assets. What if they could be leveraged among all the citizens of the state of Texas and beyond? This is the vision underlying UTOPIA (utopia.utexas.edu), an expanding knowledge gateway to university resources, conceived in 2002 and launched in 2004, that continues to grow with the breadth and depth of UT’s resources.

eLearning might seem a natural outgrowth of the UTOPIA initiative. “The UT system does have a successful, although modest-scale, distance learning program,” says Dan Updegrove, UT-Austin’s VP of IT. “But that didn’t seem like the best approach [for UTOPIA], in part because distance learning ends up focusing new demands on the faculty who are already dealing with 50,000 students on the campus, plus their research.” Instead, administrators decided to use the web to bring UT’s digital treasures to the public. Says Updegrove, “A key goal of UTOPIA is to demystify information, curate it, edit it, and provide graphics, illustrations, and formatting to make the resources more accessible to a non-scholarly audience.”

www.campus-technology.com/article.asp?id=17896

VISUALLY INTENSIVE PROJECTION

Students and faculty in the San Diego State University College of Engineering’s Computer Aided Design (CAD) labs regularly work with visually intensive material in which the detail of fine lines—typically present in CAD drawings—is paramount. When the school set out to outfit the labs with multimedia projectors, the technology “had to meet strict criteria,” notes James Frazee, director of instructional technology services. “The projectors needed to be bright enough to be clear in minimal note-taking, ambient lighting conditions; they needed to be higher resolution than XGA; and they needed to have the best possible image quality.”

To meet those specific needs, administrators selected two Canon (www.canonprojectors.com) REALiS SX50 multimedia projectors. Canon’s proprietary Aspectual Illumination System (AISYS) optical engine maximizes the REALiS SX50’s next-generation liquid crystal on silicon (LCOS) display technology to provide SXGA+ (1400x1050) resolution images with a brightness of 2,500 ANSI lumens and a contrast ratio of 1,000:1—all key considerations for SDSU’s implementation. “In the CAD labs, the increased resolution is a real plus because of the large amount of detail that must be shown on the screen at once,” says Frazee.

Editor’s note: Campus Technology will be following the campus use of four REALiS SX6 projectors (the latest addition to Canon’s high-resolution line). To find out how to participate, see page 56.
‘SMART’ CLASSROOMS ON A BUDGET

Common “smart” classroom configurations typically bore an $8,000–$18,000 hole in an IT budget and encompass a projector, screen, set of speakers, DVD and video players, networked internet access, and either a computer or an easy way to hook up a computer—and it’s easy to spend far more if document cameras or high-tech whiteboards are added to the list.

But certain bells and whistles may not be essential. One frill that New York’s John Jay College of Criminal Justice (associated with the City University of New York) decided to do without: a motorized screen. A manual screen was a bit less convenient, but scrapping there reduced costs both up front and in terms of maintenance, says Bill Pangburn, John Jay’s director of instructional technology support services.

And Henry DeVries, CIO and CFO of Calvin College (MI), says that administrators at his school chose not to bother with a master smart classroom controlling system, and instead, simply locked a number of remotes to the professor’s desk. www.campus-technology.com/article.asp?id=18185

ENGAGING STUDENTS

At Joliet Junior College (IL), Professor Rich McNeil is using technology to help students get involved and stay engaged in the classroom using an interactive learning product called DyKnow Vision (www.dyknow.com). The software, which can be used on individual laptop or desktop computers in a lab setting, delivers materials electronically in various forms to each student. Students can add notes on the spot, and notes from one student or instructor can be shared with the rest of the class. “The biggest thing I’ve found is that [the interactivity of the technology] helps focus students,” McNeil says. “They’re doing the work right there in class. They’re engaged.” Since he introduced the product last year, the improvements McNeil has seen in final grades speak for themselves.

By using DyKnow with Blackboard (www.blackboard.com), McNeil is also able to maintain a virtually paperless classroom. Students upload completed tests, he grades them in Blackboard, and then returns them to students electronically. www.campus-technology.com/article.asp?id=18105

LAPTOPS FOR STUDENTS IN NEED

At Coppin State University, an inner-city institution in the heart of Baltimore, a large number of students receive extensive financial aid and cannot afford the technology tools they need to help them succeed. With this in mind, explains Ahmed El-Haggan, VP of IT and CIO, the university developed a laptop refresh program whereby (based upon the financial needs of each student) the school pays up to 50 percent of the costs of a personal laptop from Gateway (www.gateway.com), giving students four semesters to pay off the balance.

At the end of the two years, a student can purchase the laptop permanently for $50, or remain in the program and get a new laptop to use over the next two years. And for students who are unable to support even the reduced costs involved in the ownership program, Coppin developed a loaner program of used computers from those students who have chosen to refresh. El-Haggan says the refresh program has empowered students, making them feel as if they have options. “Coppin is also able to help address the digital divide,” he notes, “as students can take their laptops home for their studies, and to share with their families.” www.campus-technology.com/article.asp?id=18791

TECHNOLOGY MEETS MUSIC

Instructors at Stetson University’s (FL) School of Music are using document cameras from Elmo (www.elmousa.com) to help music students learn. Previously, faculty would hand out paper copies of music, which were shared among students. But with the document camera, instructors can display to the class a single copy of a score, and as the music plays, “they can circle things, point out things, even go back and review,” says Gerry Ewing, Stetson’s director of instructional technology. The camera allows instructors to display images from books, pictures, musical scores, and more, as well as zoom in to specific areas.

According to Bobby Adams, professor of music education, as well as director of bands and coordinator of instrumental music at Stetson, the document camera is especially useful for presenting large drill charts to students. “Each student in a marching band has an assignment that involves specific and often complicated movements that are all choreographed,” Adams says, noting that the cameras allow the entire class to view the charts simultaneously so that students can see each movement as it relates to others. “It’s a superb teaching tool for showing different formations.” www.campus-technology.com/news_article.asp?id=19221&typeid=156

STANDARDIZING SUCCESS

At the University of Texas-Austin, Kurt Bartelmehs, program manager for instructional technology, has worked hard to standardize technology in classrooms across campus. A typical UT “smart” classroom contains a full complement of equipment, including an internet-connected computer, Epson (www.epson.com) LCD large-format XGA projector, amplified stereo system, VCR/DVD player, document camera, touch-screen remote-control system with software from Crestron (www.crestron.com), cabling for laptop connection, and set of inputs to plug in devices such as microscopes.

For the IT group, the use of the same systems in all classrooms means virtually no downtime, since equipment can easily be swapped out and replaced, and spares are always available. For faculty, the news is even better. Because every classroom works the same way, Bartelmehs says, faculty “can prepare a lecture for a 20-seat classroom, and give the same lecture in a 500-seat lecture hall” with absolutely no changes in equipment. www.campus-technology.com/news_article.asp?id=19094&typeid=156
Intelliworks Relationship Manager™
100% Web Based CRM Software only for Higher Education

Intelliworks, Inc. is the leading provider of insight driven actionable CRM software for higher education enabling institutions to strategically recruit, admit, and service a full range of prospects, applicants, students, and alumni. Administrative staff and management within higher education can now build relationships with their key constituents in a fluid, personalized, and meaningful way.

**iRM Essentials**

Essentials is higher education’s leading CRM solution for small to midsize schools, programs, and departments. This hosted offering provides quick and easy adoption of CRM with all the benefits of a large CRM system.

**iRM Enterprise**

This market leading CRM system enables large undergraduate and graduate programs to automate their core business processes for strategic recruitment, admissions, and the overall relationship management ecosystem including - prospects, applicants, students, alumni, and other organizations.

**iRM Analytics**

Analytics is a full featured CRM analytical solution dedicated to higher education. This powerful product incorporates a leading business intelligence platform in MicroStrategy that is seamlessly integrated into the overall CRM framework. This deep integration and fusion between an analysis tool like MicroStrategy and iRM ensures that business users can gain insight into CRM initiatives while having the ability to quickly take action using a classical CRM feature like campaign automation- this results in “insight driven actionable CRM”, a fundamental building block in understanding and managing institutional CRM knowledge and growing relationship capital.

www.intelliworks.com
nothing has changed the landscape of higher education IT more than connectivity. From "on-demand" services for our net-gen students and advanced eLearning systems for faculty, to high-performance computing grid resources for researchers, IT is now dishing out more networked services than ever to connect campus constituents to each other and to the world. Expectations from students, faculty, researchers, administrators, their professional communities, and the general public will only grow as IT leaders grapple with the challenges of providing distributed, secure, interoperable networked services for today's connected campuses. On the next pages, we've highlighted some of the best examples of how campus IT is meeting the connectivity challenge.
WHAT DOES WIRELESS CONNECTIVITY LOOK LIKE?

Artists and IT managers at Ball State University (IN) collaborated this past spring on an interactive digital sculpture project depicting the school’s wireless network infrastructure in a multisensory experience, incorporating projection screens, cameras, computers, speakers, lights, and even the carillon bells in the campus’ Shafer Tower. The sights and sounds reacted to changes in network activity and traffic location as they happened, including the activity of local participants using their handheld 802.11g wireless devices to interact with the sculpture in real time. The digital sculpture will be recomposed and displayed permanently on a series of wall-mounted plasma screens; plans are to overlay real-time and historical data that illustrate the full spectrum of campus wireless traffic. www.campus-technology.com/news_article.asp?id=18336

MULTI-INSTITUTION CONNECTIVITY

Louisiana State University CIO Brian Voss says that supercomputing is a priority at LSU: “One of the things we’re very focused on, because of the presence of Ed Seidel and the Center for Computation and Technology [www.cct.lsu.edu] at LSU, is high-performance and grid computing for the advancement of science. And the LONI project—the Louisiana Optical Network Initiative [www.loni.org]—goes beyond what we’re doing on our own campus. What differentiates it from many of its regional optical networking peers around the country is that LONI is not only a network; it is also a scientific grid computing environment. In addition to buying the fiber pathways, optical gear, and network switches to bring up LONI as a regional network, we’ve also purchased high-performance computing resources to distribute to state institutions so that we can use LONI to form a computational grid.” This plan will include six Dell (www.dell.com) server clusters running at 30 teraFLOPS. Adds Voss, “LSU is also a member of SURA [www.sura.org], the Southeastern Universities Research Association. SURA has a project called the SURA-grid [www.sura.org/SURAgrid] that allows member institutions to put computational assets or resources into a broader grid across the SURA community, to provide that resource to researchers working collaboratively within SURA. And that is moving forward at a rapid pace over the next few months.

“Both LONI and the SURagrid are initiatives that help advance the collaborative nature of 21st-century science, and show how building IT infrastructure can really enable scientific advances that go beyond the borders of an individual lab or campus, or even, say, to a broader region,” he says. “And that fits well with our role in the national infrastructure in terms of our involvement with national high-performance networks such as National LambdaRail [www.nlr.net].” www.campus-technology.com/article.asp?id=18771

P2P AND COLLABORATIVE LEARNING

Judith Boettcher reflected in her June 2006 eLearning column: “The P2P paradigm is not restricted to music sharing or moviemaking. Clearly, two key P2P features are fast becoming essential to the future of eLearning: instant communication between peers, and file sharing (which includes more control over content). Add in the growing culture of sharing and collaboration, and sprinkle with the continuing evolution of the faculty member into the role of producer and director, orchestrating learning from the sidelines. These are the elements of the eLearning experience we should be preparing and designing for. The relationship between faculty and students will continue to change, and adjusting our tools and systems to benefit, not collapse, from these changes is our challenge. Where P2P services will lead is yet unknown, but their future application to collaborative eLearning will no doubt hold surprises for us all.” www.campus-technology.com/article.asp?id=18570

continued on page 31
How the California State University System Adopted a Unified Vendor Network Security System

THE GREAT BAKE-OFF

by Neal Starkman

A Special Report sponsored by Juniper Networks
HEN YOU'VE GOT TO COME UP WITH NETWORK SECURITY that will serve 23 campuses and the office of the Chancellor, almost half a million students and maybe 50,000 staff—you've got to think long and hard about how you're going to do it. California State University—CSU—is the largest university system in the country—perhaps the world—and Michel Davidoff is the Senior Technology Infrastructure Architect, Technology Infrastructure Services, for that university system. It was his job to choose the vendor for network security and to oversee deployment.

On the face of it, the task wasn't that daunting. Davidoff was authorized to follow the standard procurement process to select a vendor, he was provided ample budget for the project, and since the university had a long history with Cisco, many outside observers believed the vendor selection criteria would naturally favor their existing vendor.

But those observers didn't know Davidoff.

“I believe,” he says, “that in order to be successful, you need to build ‘collaboration pockets.’”

For something this important—providing all the campuses and the administration with networks, including the deployment of switching and routing equipment and the integration of security equipment into local area networks—Davidoff wanted all the stakeholders to buy into the process. That meant the networking directors, the technicians, the Information Security Officers, the Chief Financial Officers, and the Chief Information Officers. Davidoff also wanted to start the process with a blank slate: No vendors would have an upper hand. No decisions would be made until all the facts were in.

Few entirely believed him, but Davidoff forged ahead. He hired consultants to solicit feedback from the networking directors and technicians of each of the 23 campuses in order to develop an “architecture” for the new system. The emerging basic framework was then sent to the Chief Information Officers and to the technology staff. Davidoff asked them not for product ideas but for function ideas:

“Don’t tell me you want a firewall; tell me what it needs to do.”

From that feedback came a 64-page Request for Information (RFI), which in turn was sent out to vendors. The entire process took about a year.

Let’s pause for a moment to reflect on how personality affects process. Michel Davidoff used to be a chef. In 1984, a friend introduced him to this new technological product that was called a “PC.” Since Davidoff no longer wanted “to wake up at 2 in the morning and cook for a wedding for 200 people,” he switched his cutting board for a keyboard and eventually ended up working at California State University.

What Davidoff could have done was “prepare the menu” himself; that’s what chefs do. He could have developed the criteria, written the RFI, interviewed the vendors, chosen the system, and sat back while it was being deployed, hoping that his guests liked the food. Instead, he invited the guests—the stakeholders—to create the menu, based on their needs. Thus, everyone was motivated to enjoy it. It was a collective effort, a collaborative effort.

Now that there was consensus on what kind of system was needed, it was time to select the vendors, 15 of whom responded to the RFI. Davidoff’s colleagues suggested a “shootout,” in which a short list of vendors would compete for the prize of implementing their network security system throughout the entire university. Davidoff, however, is from the Middle East, and while the concept of a competition was appealing, the terminology...
wasn’t. He offered instead something from his professional background: a “bake-off.” Each vendor would undergo rigorous tests, just like a cooking competition; the winner would be chosen by a group of judges.

Davidoff and his colleagues secured a laboratory in a CSU facility that emulated a campus environment, designed both objective and subjective tests, brought in several dozen experts to the testing facility, and invited five vendors to compete. The testing included more than 100 evaluation criteria and over 50 repeatable tests on four network security components: firewalls, virtual private networks, intrusion detection and prevention systems, and management.

A month later, two vendors remained—Juniper Networks, Inc. (www.juniper.net) and Cisco; they were the ones who received the highest scores (2,830 for Juniper, and 2,622 for Cisco) from both the evaluation team that performed the testing and from the technical observers from the various CSU campuses. Eleven of the 12 campuses that participated in all the testing independently determined that Juniper’s solution would best meet CSU’s requirements. Juniper’s equipment scored the highest not only in terms of total points but also in every component category.

Now Davidoff assessed each vendor’s products’ Total Cost of Ownership (TCO) in the areas of hardware, installation, training, maintenance, and consulting engineering. He had the campuses’ CIOs determine what exactly was quantifiable. “I wanted to use a method,” says Davidoff, “that I felt was not perfect, but had a lot of integrity and a lot of defensible procedures.”

The winner of the bake-off was Juniper; as mentioned, they got a higher technical score, and they also came in 17% less expensive. Deployment of the network security has begun, and by January 2008, all 23 CSU campuses and the chancellor’s office will have a unified single-vendor network security system.

Juniper Networks’ product line includes “solutions” in the areas of firewalls, intrusion detection and prevention, secure access SSL VPN, unified access control, and acceleration and optimization. Matt Harcourt is Juniper’s director of government and education. Naturally, he’s immensely satisfied with the outcome of the bake-off:

“They really threw all preconceived notions out the door... They just looked at what the best technology was for the right price...We’re proud that after all of that, Juniper was the clear-cut winner.”

More than that, Juniper is touting Davidoff’s approach as a wise way to assess vendors. As for Davidoff, “I am very thrilled. Did I make the best use of the money given to us in the most efficient way? I can say yes.” The bake-off cost half a million dollars. But, Davidoff points out, the discounts from the vendors above traditional discounts were three million dollars. And, he adds, there’s a new level of bonding, of trust, of camaraderie among the IT community at CSU. It was, he says, a win-win situation.

This is a success story. Davidoff motivated his colleagues by saying that if they didn’t make a decision, he would make it for them. He backed up the process with an ample budget. The process worked because it was open, it was collaborative, and it was directed toward giving the campuses what they needed. In the end, CSU established a relationship with Juniper Networks that will profit both the company and the university.
No sneaking into your network, now or ever. Juniper Networks’ award-winning, market-leading weaponry leads the battle against network threats. Making any enterprise, government or educational sector network impenetrable – all without sacrificing speed or reliability. Because superior performance shouldn’t be at the expense of security, it’s the essence of it. That’s a powerful reason to Juniper your net. And now: www.juniper.net/securityproducts
NEXT-GENERATION WIRELESS

At the University of Texas-Austin, Nortel (www.nortel.com) is getting some expert advice on the development of tomorrow’s wireless technology. Through the university’s multidisciplinary Industrial Affiliates Program, students and professors are carrying out pre-competitive research on wireless technology. UT’s Wireless Networking and Communications Group (www.ece.utexas.edu/wncg), a research center within the department of Electrical and Computer Engineering, is working with Nortel and other wireless, software, and semiconductor company sponsors on research in such areas as propagation and antennas, modulation and coding, signal processing, sensor and ad-hoc networks, network security, and network architectures.

COLLABORATION VIA THE PORTAL AND BEYOND

Loyola Marymount University (CA) turned its SunGard Higher Education (www.sungardhe.com) Luminis campus portal into a two-way web application to support document sharing and collaboration for the whole campus. By integrating Xythos (www.xythos.com) Digital Locker applications within its portal, LMU is encouraging users to store all of their content in the portal, making it much easier to share with others. Single sign-on authentication and encrypted file transfer provide improved content security and compliance. The Xythos solution will also help support the university’s strategic initiative to increase its focus on research, because it provides web-based tools for securely sharing research-related materials among different organizations that connect via public networks such as the internet.

HANDHELDs IN THE FIELD

In New York City’s borough of The Bronx, Hostos Community College of CUNY students are taking their Palm (www.palm.com) Tungsten E2 PDAs to city parks, to study forest ecology. The devices are part of an initiative at the college that will introduce mobile technology into curricula across various disciplines, including mathematics, nursing, and biology. www.campus-technology.com/article.asp?id=18768

HOW TO LIVEN UP THE CMS

One of the largest distance education programs in the world, with some 1,000 online courses offered annually, UMassOnline’s (www.umassonline.net) Live Classroom to support all live classes and meetings. The live virtual classrooms feature audio, video, application sharing, and content display. A seamless integration with Blackboard’s (www.blackboard.com) Vista Enterprise (UMassOnline’s course management system) was at the heart of the decision to use Live Classroom. Brian Douglas, chief technology officer and director of operations for UMassOnline, explains, “Through integration with Vista, we will enable faculty to use Live Classroom as they see fit for their programs and courses.” Horizon Wimba’s synchronous platform will support live interaction in many of UMassOnline’s professional programs, including the RN-BS in Nursing and other high-touch, highly interactive professional areas. www.campus-technology.com/news_article.asp?id=18965&typeid=185

PARTNERING UP TO GET THE MESSAGE OUT

The Community College of Southern Nevada is already one of the largest community colleges in the country, and it’s growing fast. With communication as a top issue, IT leaders are using video over IP in a simple, yet innovative way to get targeted messages out via large display monitors strategically placed throughout the main campus and in surrounding high schools in the Las Vegas area. The system is the result of a partnership among SunGard Higher Education (www.sungardhe.com), VBrick Systems (www.vbrick.com), Brainstorm Networks (www.brainstorm-networks.com), and Cisco Sys-
CONNECTIVITY

tems (www.cisco.com), blending technologies from those companies to create capabilities for streaming video in MPEG-2 and MPEG-4, video-on-demand, ticker information, and more. The Cisco Application and Content Networking System and VBrick Systems set-top boxes are used in combination with various sizes of wall-mounted LCD monitors.

BIG COMPUTERS SOLVE BIG PROBLEMS

This past June, Stanford University (CA) officially opened the Stanford Center for Computational Earth and Environmental Science (CEES, stanford.edu), a research partnership among Stanford’s School of Earth Sciences and affiliates from the Stanford Computer Systems Laboratory, government, and private industry. The center will serve as a portal to computational geosciences, featuring access to CEES Grid, a powerful computational resource. The CEES Grid hardware is organized into three resource clusters connected by a 1GbE network to two Sun Microsystems (www.sun.com) V40z machines running Linux, a 10GbE network to a Sparc Cluster running Solaris 10, and an InfiniBand network to an AMD Opteron (www.opteron.com) cluster comprised of 64 Sun V20z dual CPU nodes running Linux. The center will take on complex computational problems surrounding analysis, simulation, and prediction of geologic processes and systems, while working toward significant advances in relevant computing technologies.

The chief Silicon Valley partner, Sun Microsystems, contributed hardware, software, and program support for a new High Productivity Technical Computing Center (one of three thematic units at CEES). Sun donations for CEES have amounted to $3 million in hardware and cash. A major affiliate, Cisco Systems (www.cisco.com), contributed $250,000.

Says Stanford President John Hennessy, “If you want to solve big problems—important, critical problems to human society and to our environment—you need big computers.”

DEVICES AND NETWORK ACCESS

For the IT staff of Central Michigan University, the three-times-a-year crush of students, faculty, and staff returning to campus is now little more than another day at the office. Instead of a semester-long backlog of work orders created by opportunistic viruses and lack of usage policy enforcement, CMU enjoys the order and automated security that comes from campuswide network access control.

CMU implemented Bradford Networks’ (www.bradford-networks.com) Campus Manager, an out-of-band NAC solution that manages, secures, and controls all devices accessing the network while enforcing network registration and authentication policies. The system automatically pinpoints and isolates problem users (correlating users to systems via their MAC addresses) to enforce campus usage policies and to mitigate the introduction of viruses onto the network. Problem users and their machines are quarantined in an isolation VLAN, notified via e-mail, and given directions to have their network access restored without calling the help desk.

Last year, to prevent the propagation of the Nachi and Blaster worms, for three months one staffer did nothing but port activations/reactivations, traveling to dorms and wiring closets to manually drive the viruses from the network. But that’s all changed with the new system. Network Manager Mark Strandskov remarks on the difference: “This fall went
webcast your lecture without a lecture on webcasting

With Mediasite, you can share your expertise over the web without needing any web expertise. Designed for educators, Mediasite records what you’ve got to say and webcasts it live over the internet, automatically. Learners can then watch in real time or later on demand. And you get to avoid Webcasting 101.
CONNECTIVITY

smoothly. Two weeks into the term we were dealing with two pages of work orders; less than a dozen cases in all.”

‘ON-DEMAND’ DEMAND

Northeastern University (MA) VP of Information Services Bob Weir sees a growing trend in higher ed toward “on-demand” services. “Incoming freshmen, born in 1988, have never known life without PCs or the net. To be relevant, higher ed must reflect the real world...an ‘on-demand’ world,” he says. In that world, “all course-related software is available to faculty and students anytime, anywhere, potentially eliminating the need for computer labs. Students become knowledge manipulators and generators: Faculty can expand assignments to focus on experiential versus rote learning.” www.campus-technology.com/article.asp?id=19488

CONNECT TO YOUR LOYAL FANS

At many institutions, fight songs are now playing all over campus/on the quad, on the bus, in the cafeteria, and sometimes (though not ideal) even in class. Just about any place you’d find a cellular phone, you can hear a school’s fight song in all of its rah-rah glory. Thanks to a new and lucrative form of content delivery, the songs actually come from the phones themselves, as special polyphonic ring tones that students can purchase, program to replace the phone’s traditional ring, and play every time they receive a call. And at the University of Pittsburgh (PA), school spirit is more than just a song: The school recently signed a deal with Collegiate Images (www.collegiateimages.com) to offer a variety of logos and other images for users to install on their phones as wallpaper. In some cases, trailblazing schools are also inking mammoth licensing agreements for anything and everything: sports scores via text messaging, breaking news updates, sales on merchandise, and more. Though these latter deals are rare right now, Mike Merrill, chairman and CEO of content provider Smartphones Technologies (www.smartphones.com), says they are becoming increasingly common, and the sky’s the limit for what happens next. www.campus-technology.com/article.asp?id=17717

REACTING TO SECURITY BREACHES

What can endanger connectivity more than a security breach? The break-in to an administrative database at the McCombs School of Business at the University of Texas-Austin this spring may have compromised the personal data of a very large number of individuals (about 397,000 database records, according to media reports). CT asked UT-Austin’s VP of IT Dan Updegrove, What are some of the key steps in the process of reacting to such a breach? “Several processes should be engaged immediately: (1) Contact the institution’s Information Security Office (if they were not the ones who discovered the problem) so their technical expertise and incident response protocols can be engaged immediately. The incident response plan should include not only forensic analysis of data, systems, and networks, but also communication with executive management, law enforcement, legal affairs, and public affairs. (2) Unless advised otherwise by ISO, take the vulnerable/breach-enhanced machine off the network. Under certain circumstances it may be advisable to keep the host on the network to enable ongoing investigation of the intrusion’s source, in which case special precautions must be taken to protect data on the machine. One approach: Replace institutional data with a bogus dataset that may serve as a ‘honey pot’ to keep the intruder engaged while the ISO and/or law enforcement track the rogue activities. (3) Take immediate steps to avoid deletion of system and network logs, which can be immensely valuable for determining not only the source of the break-in, but also what damage has been done and what data may have been exposed or tampered with. Since such analysis in a complex case can take weeks, logs cannot be allowed to expire according to a routine schedule measured in days.” www.campus-technology.com/news_article.asp?id=18516&typeid=185

MISSION-CRITICAL CONNECTIVITY

At the New York University School of Medicine, high-definition videoconferencing is a necessity, not a luxury. The teaching hospital has built three fully HD-enabled operating rooms, incorporating Sony (www.sony.com) videoconferencing systems and an IP network. The operating rooms, a guest viewing area, a conference room, and a physician’s office are connected with Sony’s IPELA visual communications technology. The equipment is used not only in the teaching practice at NYU and for distance learning, but also to streamline and improve procedures: “I can even watch the preparations being made for surgery [from my office],” comments Dr. Stephen Colvin, chairman of cardiothoracic surgery at NYU.
SUPPORT SERVICES TO KEEP STUDENTS CONNECTED

President Linda Thor on what makes Rio Salado College (AZ) successful in serving some 45,000 credit and 15,000 non-credit students each year, as a non-campus college: “While we are seeing a rush of virtually all higher education institutions to get into online learning, simply putting a course online does not get the job done. What we believe leads to our success—and we enjoy about an 80 to 85 percent retention of our online learners—is the support services we have in place, and our systems approach in dealing with the online learner. You can’t expect a faculty member to put a course online and then be able to meet all of the students’ needs for tutoring, advising, testing, and logistical questions. You’ve got to have the entire college positioned to support that online learner.”

www.campus-technology.com/article.asp?id=19474

STATEWIDE VIDEO NETWORKING

In the state of Arkansas, higher ed institutions, along with K-12 and other public entities, have a distinct advantage when it comes to video networking. Although Arkansas is not a wealthy state—the 10th poorest in the country, according to the US Census Bureau—the state’s Department of Information Systems (www.DIS.state.ar.us) has built a statewide video network called VNET that offers high-quality, cost-effective interactive videoconferencing to rival IP video services almost anywhere. The centralized IP network is based on AT&T (www.att.com) services and technology. Max Kolstad, manager of video services at DIS, comments, “AT&T has the resources to develop innovations that enable users to get the most from videoconferencing. We get a big R&D benefit that doesn’t add to the state’s network cost. I think that’s one of the reasons the network works as well as it does.”

ENTERPRISE-WIDE EDUCATION PROGRAMMING

East Carolina University (NC) is ramping up lecture capture and delivery with Sonic Foundry’s (www.sonicfoundry.com) Mediasite Rich Media Server software and ML series recorders. ECU’s Global Classroom Video Producer Emily Jones now uses Mediasite to capture 40 recordings per week within multiple colleges across the campus. With 17 recorders and three servers, ECU webcasts more than 530 hours of classroom content per semester—but that’s expected to double over the next six months. For the next phase of Mediasite deployment, the university plans to start with an installation of 16 new units in its Allied Health Sciences facility—and it is working on plans for additional units to be placed around the campus.

CELL PHONES BUILD COMMUNITY

At Baruch College in New York City (one of 10 senior colleges of The City University of New York), CIO Arthur Downing is working with Rave Wireless (www.ravewireless.com) to supply students with cell-phone-accessible applications for academic-oriented uses. Downing explains that although the school’s 15,000 students have good access to computers on campus, and wireless coverage is fairly pervasive, students wanted more. “Rather than [adding more computer] labs and kiosks, we wanted an easier way to get our web-based applications to them.

“We don’t have a wealthy student body,” Downing says, and most students don’t carry a laptop or PDA. And since all Baruch’s students commute, spending less time on campus than conventional students, there’s little time to connect with others or take advantage of university services. “So, right now anyway, our [cell phone] applications are meant to help them use their time between classes most efficiently,” he says. “We’re trying to build a sense of community.”

Rave Wireless’ software allows the school to deliver academic information to virtually any cell phone. The applications also allow students to use cell phones to check on the availability of loaner laptops and study rooms, and students can join cell phone “channels” to correspond with students of similar interests. They can receive text message alerts about class changes or cancellations—crucial news for Baruch’s commuter students. For example, Downing notes, during New York City’s recent transportation strike, the cell phone service would have been an invaluable way to immediately reach all students with schedule changes or other updates. www.campus-technology.com/article.asp?id=18187

WHEN CONNECTIVITY ISN’T ENOUGH

Just having connectivity to learning resources is not enough to guarantee effective use of those resources. Lorie Roth, assistant vice chancellor for academic programs at the California State University Office of the Chancellor, speaks out about the need for improved information literacy: “For two decades,
US newspapers and magazines have featured articles about new technologies; the information explosion, information overload, and information illiterates. They frequently report on students’ (and some professors‘) egregious lapses of integrity and judgment in dealing with information. By comparison, the higher education establishment has been relatively feeble in its attempt to raise awareness of and adapt to the shifting demands of the information age. Due to the advance of the dot-coms, dot-orgs, dot-govs, and dot-edus, what students learn and how they learn will have to be reconceived.”

So in addition to making an investment in the teaching and learning infrastructure, CSU attempted to find an assessment that would measure students’ information literacy skills, says Roth. “Our most recent [work] has been a collaboration with the Educational Testing Service (www.ETS.org) and several other universities, including UCLA, the University of Washington, Purdue University (IN), Portland State University (OR), and the University of Memphis (TN). This assessment, called the ‘ICT Literacy Assessment’ [ICT stands for information and communications technology], is an online, scenario-based simulation that asks students to perform real-life information tasks. Skills assessed include the ability to use basic tools such as word processing and spreadsheets and, most importantly, higher-order cognitive skills such as retrieving and evaluating information resources and the ethical use of information.” www.campus-technology.com/news_article.asp?id=18964&typid=190

UBIQUITOUS WIRELESS COVERAGE

Early versions of cellular data service were so slow as to be practically useless, but this is changing. Current offerings provide end-user bandwidth of 300 Kbps to 1.2 Mbps downstream (much superior to a modem and nearly as good as DSL). The key advantages of this technology, from a campus perspective, are that it is already quite pervasive (similar to cell phone coverage), no campus support is required, and there is little or no start-up cost. The primary downside is the fact that you are limited to what your carrier’s network provides.

By ‘linking up’ with an ISAC, you’re no longer in the deep end by yourself.” www.campus-technology.com/news_article.asp?id=18877&typid=190

NETWORKING TO SECURE NETWORKS

To keep connectivity alive and well on your campus, share information suggests Brian Nichols, Louisiana State University CISO. As a member of the Educause/Internet2 Computer and Network Security Task Force (www.educause.edu/security), Nichols is active in community efforts to improve overall security in higher ed. “Part of becoming a member of this community is giving back as you’re taking from it,” he says. “One way to share information is to join an Information Sharing and Analysis Center [ISAC]. ISACs provide a means to obtain information from reliable sources, report anonymously, and obtain expertise. The REN-ISAC [Researching and Education Networking ISAC; www.ren-isac.net] at Indiana University’s Global Research Network Operations Center is an effort to improve network security in higher ed. By ‘linking up’ with an ISAC, you’re no longer in the deep end by yourself.” www.campus-technology.com/news_article.asp?id=18877&typid=190

GOOGLE AS CONNECTIVITY CONDUIT

In February 2006, Google (www.google.com) unveiled its beta of a Gmail-hosted e-mail service that allows organizations to keep their own domains. The idea, of course, is to leverage the hosted services to avoid some of the resource allocations and costs of running onsite systems. By August, the company expanded on the idea by offering a broader range of communications applications. Besides Gmail,
Are you ready for the Digital Generation?

Today's students have grown up in a digital world along with a sea of electronic digital devices. Naturally, they expect the latest in cutting-edge technologies to be offered on every campus.

Let NEC show you how to meet the communication needs of the Digital Generation. Our solutions for higher education provide a full range of the latest cyber-infrastructure technologies, enabling campuses to offer innovative teaching methodologies, drive new sources of revenue and manage costs. NEC's solutions are comprised of voice, data and video products, applications and services built on the latest IP communication technologies. These solutions address campus needs ranging from mobility to network security and campus safety.

www.necunified.com/highered
Google Apps for Your Domain (www.google.com/a) currently includes the Google Talk instant messaging and voice calling service, Google Calendar for collaborative calendaring, and Google Page Creator for web page design, publishing, and hosting. The apps are available free to approved education beta users, through Google Apps for Education (www.google.com/a/edu).

San Jose City College (CA) is among the institutions already using Google Apps for Education, citing easy implementation and student familiarity with Google software. And in October, Arizona State University made the first large-scale deployment, creating 65,000 new “Gmail for ASU” accounts at the rate of 300 per hour. www.campus-technology.com/news_article.asp?id=19214&typid=190

KEEP CONNECTIVITY SURGING
Carnegie Mellon University (PA) Network Manager for Electrical and Computer Engineering Lou Anschuetz has an easier way to monitor network activity in real time, as well as document trends. Neon Software’s (www.neonsoftware.com) CyberGauge 7.0 allows network administrators to monitor and manage network bandwidth by automatically creating real-time utilization graphs as well as daily, weekly, and monthly quality of service (QoS) and billing reports. “We who do networking want to know what the historical bandwidth usage is on interfaces,” explains Anschuetz. “In the past, a number of scripts were used to poll the network devices and get that data. You had to do a lot of manual, time-consuming configuration. [With this software], configuration amounts to typing in the password to access network devices, and then just picking from a list which interfaces with the device to monitor.”

CONNECTING DISCIPLINES TO SUPERCOMPUTING POWER
In April, Indiana University announced its acquisition of “Big Red,” a supercomputing system since proven to be the fastest owned and operated by a US university, and the 23rd-fastest supercomputer in the world, as noted in the recently released Top500 (www.top500.org). Michael McRobbie, interim provost and VP for academic affairs at IU-Bloomington, says the system gives IU scientists and researchers “the best cyber infrastructure at any university in the US, if not worldwide.”

The supercomputer, boasting a peak theoretical capability of 20.4 teraFLOPS, is an e1350 BladeCenter Cluster based on IBM’s (www.ibm.com) latest technology, paired with over 1 petabyte of high-speed disk storage and an additional petabyte of tape.

Major funding comes from the Indiana Metabolomics and Cytomics Initiative, or METACyt (metacyt.indiana.edu), which is funded by a $53 million grant from the Lilly Endowment (www.lillyendowment.org), and from the National Science Foundation (www.NSF.gov). While the investments represent a big first step in IU’s new Life Sciences Strategic Plan, there’s a lot of supercomputing power that will be accessed by researchers in numerous disciplines, leveraging a services model for advanced research computing. A few of the broad discipline areas to be served include astronomy, informatics, computational physics, and the humanities.

The system will also connect to global research networks and play a role in TeraGrid (www.teragrid.org). NSF’s flagship effort to create an advanced national cyber infrastructure, www.campus-technology.com/news_article.asp?id=18378

DISPARATE APPS CAN BE CONNECTED
At Rice University (TX), researchers are collaborating with IBM (www.ibm.com) on the development of an open-standards-based, service-oriented architecture (SOA) that will ultimately tie diverse types of academic software applications together. Says Kamran Khan, vice provost for IT: “Discrete, open source applications such as courseware management systems, digital libraries, and content commons are becoming central to the life of a university. It is important to tie these standalone applications together into a more coherent whole.” IBM donated BladeCenter hardware technology, software for an SOA platform, and related services, for a total grant valued at $700,000. Rice will provide a working demonstration environment that already includes implementations of Sakai (www.sakaiproject.org), DSpace (www.dspace.org), and Rice’s own Connexions (www.cnx.org) software. Connexions founder Richard Baraniuk comments, “Fusing Sakai, Connexions, and DSpace will make it easy for large and small institutions to get involved in this important movement.”

A MONITORING solution from Neon Software manages bandwidth to keep Carnegie Mellon’s network traffic flowing—and CM students connected.
With HP’s ProLiant ML150 G3 Server powered by the Dual-Core Intel® Xeon® Processor, you can better protect your campus, guarding your system against data corruption, unauthorized Internet users, viruses and hacker attacks. With our RAID system, you can recover your data if a hard drive fails. And as if that wasn’t already enough, combine it with a StorageWorks DAT 72 tape drive and you’ll gain the extra protection of HP’s exclusive One Button Disaster Recovery, allowing you to restore your operating system, applications and data with the simple push of a button. You need to protect your campus’s data. HP can help you do it.

DON’T WORRY IF A BLACKOUT ERASES YOUR SCHOOL’S RECORDS. AT LEAST YOU’RE BETTER PROTECTED.

Prices shown are HP Direct prices; reseller and retail prices may vary. Prices shown are subject to change and do not include applicable state and local taxes or shipping to recipient’s address. Offers cannot be combined with any other offer or discount, are good while supplies last and are available from HP Direct and participating HP resellers. All featured offers available in U.S. only. Certain warranty restrictions and exclusions may apply. For complete warranty details, call 1-800-345-1518 (U.S.). 1. Dual-Core is a new technology designed to improve performance of multithreaded software products and hardware-aware multitasking operating systems and may require appropriate operating system software for full benefit; check with software provider to determine suitability; not all customers or software applications will necessarily benefit from use of this technology. Intel’s numbering is not a measurement of higher performance. 2. Service levels and response times for HP Care Packs may vary depending on your geographic location. For details, visit www.hp.com/go/carepack. 3. While supplies last. Restrictions and limitations apply. Intel, the Intel Logo, Xeon and Xeon Inside are trademarks or registered trademarks of Intel Corporation and its subsidiaries in the United States and other countries. ©2006 Hewlett-Packard Development Company, L.P. The information contained herein is subject to change without notice.
VULNERABILITY SCANNING

When it comes to network vulnerability scanners, know your tools and clarify your goals—or be sorry later, asserts CT columnist Doug Gale. Just detecting the vulnerabilities on your campus isn’t enough to protect ongoing network connectivity. The results of the vulnerability scan must be centrally organized into some kind of report that prioritizes the problems found and identifies remedial action. One of the advantages of commercial products is that they usually include sophisticated report writers—extremely valuable in environments (like higher ed) that include tens of thousands of nodes.

The good news for colleges and universities using open source scanners is that the National Institute of Standards and Technology maintains the National Vulnerability Database (NVD.nist.gov) that integrates all publicly available US government vulnerability resources and provides references to industry resources. The NVD is updated on an hourly basis on business days, and is based on and synchronized with the Common Vulnerabilities and Exposures naming standard (CVE.mitre.org). Another resource: Cassandra (cassandra.cerias.purdue.edu), operated by Purdue University’s (IN) Center for Education and Research in Information Assurance and Security. Cassandra uses the NVD database to provide customized e-mail notifications of vulnerabilities. www.campus-technology.com/article.asp?id=17720

INTERACTIVE KIOSK RESEARCH

Smart Technologies (www.smarttech.com) and the FedEx Institute of Technology at the University of Memphis (TN) are collaborating in a research project called the Memphis Intelligent Kiosk Initiative, to investigate the preferred and most efficient forms of human interaction with information kiosks. Across the campus, Smart’s Actalyst interactive overlays fasten over large flat-panel kiosk displays to offer a touch-enabled interface; a camera and speech-recognition system allow the kiosks to identify approaching users and interact with them verbally. Researchers are studying kiosk recordings to determine how visitors access information. www.campus-technology.com/article.asp?id=18769

CONNECTING STUDENTS TO SUCCESS

Social networking sites such as Friendster (www.friendster.com), Tribe (www.tri.ine), Facebook (www.facebook.com), and MySpace (www.myspace.com) have collectively linked millions of individuals in ever-expanding circles, based on common interests and self-describing profiles. Columbia College Chicago hopes to tap into students’ yearning for such networking, and strengthen it with the kind of content that only a college community can provide. The institution will be using ePortaro’s (www.eportaro.com) online portfolio system—custom integrated with the school’s Jenzabar (www.jenzabar.com) student information and portal software—to provide ways for students to display their talents for the benefit of potential student co-collaborators and also for potential future employers. Jenzabar’s student system will handle authentication of students and verification of academic data about students, such as their majors and course enrollment. www.campus-technology.com/article.asp?id=18005

STUDENTS CONNECT 24/7

The 6 and 7 of 24/7 are critical to many students’ success, as are the hours after 5 p.m. Cary Israel, president of the Collin County Community College District (TX), notes, “Many students have full-time jobs and are students outside ‘8 to 5’ only.” CCCCD has a Weekend College program, allowing students to take a full load of classes on the weekend, and those students, especially, need around-the-clock access to many campus resources and services via the web.

Besides accessing distance learning courses online, students can utilize such online services as admissions and registration, tutoring and writing labs, grades and transcripts, and bookstore and library resources, all optimized for student success. Israel adds, “Learners reach their intellectual peaks at various times, and they have a better chance of meeting their goals with 24/7 access. By being flexible and eliminating time and space barriers, we enable our students to participate and, ultimately, to succeed.”

SECURING THE PERIMETER

Nothing can stop connectivity cold faster than an internet security violation. At George Washington University (DC), technologists implemented a technology from Recon- nextr (www.reconnex.net) to ensure that certain internet traffic complies with federal privacy regulations laid out in the Gramm-Leach-Bliley Act of 1999. The tool, dubbed iGuard, sits on the network perimeter and scans all outgoing web traffic for sensitive files or data that could violate the law. The tool searches e-mails for sensitive information such as Social Security and credit card numbers. If the device identifies something that violates campus policy, it blocks the message and notifies the sender immediately.

Amy Hennings, assistant director of information security,
says iGuard has become the school’s primary defense against identity theft. Though skeptics have questioned whether the school is invading the very privacy it’s trying to protect, Henning’s team is working to fight this perception. “We want to make sure that everyone knows we’re not interested in reading their e-mails,” she says. “We just want to make sure all of the e-mails satisfy compliance requirements.” www.campus-technology.com/article.asp?id=19306

**CYBER INFRASTRUCTURE IS BURGEONING...**

...and services connected through that infrastructure will bring benefits for education and research. Krishna P.C. Madhavan, a research scientist for the Rosen Center for Advanced Computing at Purdue University (IN), reflects: “Top-notch models of central IT support for research and learning have emerged at US universities. Centralized consolidation of IT services (such as storage, network, computational power, software support, and security) is the new paradigm. Such central services allow researchers and educators to focus on an institution’s dual mission of research and education. Time and space are now referred to as ‘anytime, anywhere.’ The maturity of IT services has led to mobility, social networking, and the ability to contribute to one’s field more easily than ever.” Yet very large, growing, centrally supported systems have their challenges, as Steve Acker, director of special projects at The Ohio State University points out: “About two years ago, OSU moved from a campus version of WebCT (www.webct.com) to an enterprise version of Desire2Learn (www.desire2learn.com). Although the central server infrastructure, access to network bandwidth, and security have supported a rapid increase in use of the eLearning system, size comes with its own set of costs. For example, the migration process took us approximately 18 months.” www.campus-technology.com/article.asp?id=18592

**GRAPHICAL AUTHENTICATION**

There is an alternative to old-fashioned, username-and-password security. The Engineering department at California State University-Chico has deployed AuthGard, a system from Authernative (www.authernative.com) that provides knowledge-based (“what the user knows”) strong authentication for web logins. The key authentication factor is graphics-based, offering higher levels of security while making the user’s experience easier and more engaging. Instead of a text-based password, users select a “passline”—a series of positions plotted on a grid on which each position is represented by a number that the system changes with every login. The passline forms a shape that’s both easy for the user to remember and extremely difficult to hack. Each time the user logs in, the numbers representing the memorized shape have changed, and the system can add yet another level of security by asking only for specific parts of the passline to be transmitted as a login (a different request each time).

**WHAT IS PRIVACY IN A CONNECTED WORLD?**

A principal analyst for identity and privacy strategies at the Burton Group (www.burtongroup.com), Bob Blakley gave a talk this past September at Digital ID World (conference.digitalidworld.com/2006) in Santa Clara, CA, titled, “What is Privacy, Really?” In a separate interview, CT logged Blakley’s comments relative to privacy and technology: “Conventionally, people think of privacy in terms of secrecy. They think that privacy means the obligation to protect information that we have observed, maybe in the course of our job, about other people. There’s another part of privacy that we don’t speak of so often—which is equally important, or perhaps more important—and that is our obligation not to pry into other people’s affairs; to avert our eyes or close our ears if we come across something that is obviously private. And our obligation as a society is to censure people who don’t fulfill that obligation, because that kind of behavior—voyeurism and gossip—is destructive to civil society. There may be a way to construct a right to privacy on these grounds, if it continues to be the case that lots of private information is exposed.” www.campus-technology.com/news_article.asp?id=19312&TypeId=190

**GOOGLE GHOSTS**

Staff at the Office of News and Information at the University of Washington in Seattle were surprised when they received a barrage of responses to older press releases they had issued as far back as 1997. It seems that the Google (www.google.com) spider crawled not just their main news page, but also some of the subsidiary pages, without sensing the correct creation date of each news story; older releases were being picked up by internet searchers as freshly indexed stories via Google News. Bob Roseth, UW’s director of news and information, advises, “Recognize that some aggregators are probably going to get it wrong at some point. Be vigilant, identify the problems quickly, and move swiftly to minimize them.” www.campus-technology.com/article.asp?id=17636

**CONNECTING TO CAMPUS INFO**

This past January, to provide students with a steady stream of vital information, St. John’s University (NY) installed five 46-inch LCD displays from NEC (www.necunified.com) in the Queens campus’ student center, cafeteria, residential students’ dining hall, library, and on the school’s Staten Island campus. The digital signage now notifies students of emergencies or vital information, services, location maps, registration dates, and other campus information; promotes athletic events and schedules; and more. St. John’s manages all digital signage content internally; proposed messaging is submitted to a team of campus web designers, then reworked to give everything a consistently branded look and feel. Content is refreshed daily to ensure it continually attracts students’ attention.
WITH A PROLIFERATION OF MOBILE devices and growing demand for voice and data applications, more and more schools are outgrowing their network. Our 60-minute on-demand webinar will provide you with a clear roadmap for migrating to unified communications.

Scott Claverie of CSU Chico explains how the university’s new network has increased productivity and streamlined communications across campus. You’ll learn:

- **HOW TO LEVERAGE** your existing investment in your migration strategy
- **WHAT YOU NEED** to know before you migrate your network
- **HOW TO MOVE** to IP telephony and UC with minimal disruption to your campus
- **HOW TO STREAMLINE** information pouring in through different channels—voice, e-mail, fax

Log onto [www.campustechnology.com/RoadToUC](http://www.campustechnology.com/RoadToUC) and discover how campuses of all sizes are transforming their learning environments with integrated, unified communications technology.

Sponsored by AVST
hen it comes to Administrative IT solutions and processes, best practices run the gamut. Enterprise resource planning (ERP), student information systems (SIS), and tech support are obvious areas of focus. But just think about the change that could be accomplished via the implementation of campuswide document imaging and sharing, a new approach to RFP writing, or the reassessment of disaster recovery strategies and tools. Never let it be said, however, that the smallest, seemingly innocuous alteration in practice can’t make a difference: Even a new user-friendly interface that invites recalcitrant fundraising officials to actually use their advancement software, or washing machines that announce from cyberspace that they’re ready to be unloaded, can dramatically change life on campus as we know it.
WANT ADMIN IT DONE RIGHT? DIY

At San Joaquin Delta College (CA), Lee Belarmino, associate VP of IT, and his peers couldn’t find an administrative system that worked for them, so they built their own. “We weren’t just interested in the latest technology for technology’s sake, so we protected our legacy investment in processing on a very large mainframe Unisys (www.unisys.com) system while we did our research on all the major players in the administrative world,” Belarmino recalls. “We found the choices extremely pricey for what they were delivering. So, we developed our own administrative system—almost a full suite: a student information system, a human resources system, and a payroll system. As the first large-scale administrative system based on object-oriented development, it took a number of industry awards.” The college also has an off-the-shelf Oracle (www.oracle.com) financial system.

Belarmino admits that his review of existing products was discouraging, but now other institutions will benefit, too; see “Partnering for Community Source Financials,” page 49. www.campus-technology.com/article.asp?ID=18927

REAL EXPERIENCE FOR PROSPECTS

Franklin & Marshall College (PA) administrators decided that installing a formal software portal for recruiting wasn’t worth the expense. But they’ve gotten savvy about using web-based technology to serve up a personalized experience of the college. Using Macromedia (www.adobe.com) Flash animations and streaming video, along with humor, the college tries to help prospective students feel personally involved with the school. The most recent innovation is student video blogs, or vlogs. The concept is risky: Give video cameras to four university students and let them chronicle what is happening in their lives, behind the scenes and hanging out in the dorms. “No scripts, no rehearsals,” the vlog homepage promises. Visitors can even pick a student tour guide by viewing four video self-introductions. Then, as they cruise the campus looking at the facilities, they can get their tour guide’s impromptu comments.

Dennis Trotter, VP for enrollment at Franklin & Marshall, calls the approach “experience marketing,” adding, “We try to use technology to let the personality of the college shine through.” www.campus-technology.com/article.asp?ID=18583

SELF-RECRUITING = YIELD BOOM

With 40,000-plus unique website visitors each month, Massachusetts’ North Shore Community College saw an untapped opportunity to connect with potential students surfing the college website. The solution was a self-service eRecruitment system that school administrators developed, with the following components: 1) A web interface was created that allows potential students to identify themselves to the college, access a customized web page with links to resources that match their interests, and subscribe to the college’s electronic mailing list. 2) The recruitment component of the college’s SunGard Higher Education (www.sungardhe.com) enterprise resource planning (ERP) system was activated and connected to the web interface. All potential student information is now captured and transparently passed through to the ERP system, and potential students are placed in communication tracks. 3) The college developed an eMarketing system that allows personalized e-mails to be sent to target populations. E-mail campaigns are developed and managed by a communications team, in cooperation with the college’s Marketing department.

The results: In the first year of operation, more than 5,400 visitors self-recruited and recruit numbers went up more than 800 percent. A subsequent eMarketing campaign yielded a 30 percent increase in early enrollments for the fall semester. Now, all communications are tracked using the school’s ERP system, which allows the college to make strategic decisions based on hard data as recruitment efforts are refined over time.
## BI NEEDS SENIOR-LEVEL CHAMPION

Launching a business intelligence initiative is tough enough in private industry. But higher ed institutions face some extra hurdles in rolling out a data warehouse for business intelligence, according to David Wells, director of education with The Data Warehousing Institute (www.tdwi.org), a training and educational institute for business and IT professionals. Among the challenges Wells and others cite is that of gathering consensus. Unlike a typical large business, a university isn’t a single enterprise, Wells points out. It can be politically difficult if not impossible to get various entities across campuses to agree on basic issues, such as what the end-purpose of the data warehouse is, what data to share, and who should be in charge. “I think it’s a more challenging business case to make,” Wells says, partly because institutions typically divide immediately at the top into academic and administrative sectors. Because a data warehouse has to integrate across organizational boundaries, he says, the arguments that might sell administrators usually don’t resonate with the academic community, and vice versa. “It takes a real believer driving from the top to make it happen.” www.campus-technology.com/article.asp?id=18953

## IT SECURITY ON CAMPUS

Dartmouth College (NH) has been one of the “early adopters” of public key infrastructure (PKI) technology among higher ed institutions. Toward this end, administrators opted to utilize “tokens”—specifically, eToken technology from Aladdin Knowledge Systems (www.aladdin.com). eTokens include a USB-based token, a hybrid USB and OTP token, a token with flash memory, and more. The key-sized tokens simply plug into a USB port to enable on-board generation and secure storage of keys, passwords, and certificates for digital signing and encryption.

Dartmouth has issued eTokens for the past two years to all incoming freshmen, and is planning to issue tokens for all undergraduates and graduate students within the next two years, as well as to all faculty, staff, and even alumni. The school had also considered smart cards for authentication and password management, but went with USB token devices because smart cards require readers, and there would have been additional cost and maintenance compared to the USB ports available on nearly all computers. The technology is getting less complex and more affordable, say campus spokespeople.

## LURING STUDENTS BACK TO CLASS

At Colorado Mountain College, administrators are exploring ways to mine the information in the school’s student information system (SIS) to turn one-time students into repeat customers.

The school is luring back continuing education students by informing them about course offerings related to their interests. “There are a lot of lifelong learner students who take one or two art courses for personal interest throughout the year,” notes Bill Sommers, dean of enrollment services. “Through [Data-tel’s] Query Builder and Communications Management [www.datatel.com], we are informing those students of all art courses that will be offered in the upcoming semester. This is a great retention tactic to keep students enrolled each semester.” www.campus-technology.com/article.asp?id=17721

## THAT’S ENTERTAINMENT

For years, the Ohio Northern University network was plagued with bandwidth problems caused by students downloading and illegally sharing digital movies and music files. Network performance tanked, and security problems escalated. In an effort to stop the bleeding, last year George Guibis (associate VP and director of IT) and a small committee set out to find a third-party vendor that could be trusted to manage functions and the task of managing digital entertainment for the school. The team found their solution in Ruckus Network (www.ruckusnetwork.com), a service offering 1.5 million licensed tracks of music, thousands of movies, regional and community features, and a whole lot more.

Before the ink on the contract had dried, ONU students were legally downloading movies and music files through a password-protected portal. The portal allows students to personalize homepages with movies and music that interest them. At most schools, this service would cost up to $20 per student per semester. At ONU, however, school officials agreed to roll the cost into the annual student fees. Since the service went live in spring ’06, ONU students have downloaded more than 1 million songs, and bandwidth performance has improved dramatically. www.campus-technology.com/article.asp?id=18000

## DON’T LET DR DRIVE IT

According to Louisiana State University CIO Brian Voss, the possibility of natural disaster shouldn’t move an IT chief to take his eye off the IT ball in favor of disaster recovery. Earlier in 2006, Voss and his peers were completing LSU’s Flagship IT Strategic Plan (www.lsu.edu/fits), and only two of its 10 recommendations address these survivability issues. “There are eight other recommendations,” Voss points out. “They include building a solid foundation of IT infrastructure, making significant strides in increasing the accessibility of the campus community to that infrastructure, developing a robust and multi-tiered support enterprise, paying attention to our fiscal planning, developing plentiful resources for research, providing abundant...
resources to enable faculty teaching and student learning, supporting the use of IT in the student living environment, and developing our own advisory and communication structures to keep everything moving forward in a sound and collaborative way. All these things are going to be fighting for resources with the first two, so I’m very concerned that we are headed into an age in which CIOs deal only with survival and are not able to focus on the other broad elements inherent in our portfolios.”

www.campus-tecology.com/article.asp?id=18771

GIVE THEM SELF-HELP TOOLS

Sometimes, the simplest things make all the difference. Every fall, The University of Akron (OH) support team handles more than 3,000 wireless setups as the new freshman class streams in. But according to Matt Bumgard, a member of the university’s technical support team, there may be another way. To cut down on the number of cases that require hands-on help, UA’s tech support team has created knowledgebase resources on the campus intranet and flash demos of how to handle the installations and configurations—all in an effort to help students connect themselves. If all else fails, there is also a network card available in the student bookstore for $35 that is guaranteed to be compatible with the campus wireless network. www.campus-tecology.com/article.asp?id=18395

PERSONALIZE THE PORTAL

Prospective students who venture onto La Salle University’s (PA) portal are invited to “Ask Dr. Jones.” But this Dr. Jones is not a fictional dispenser of canned advice, nor a pseudonym for a back room staffed by admissions counselors. Dr. Nancy Jones is a real faculty member at La Salle; in fact, she chairs the Integrated Science, Business, and Technology program. Jones spends her evenings responding to student e-mails—one by one. Sometimes she refers technical questions to other individuals who are experts in areas like housing, financial aid, or specific academic disciplines. But, often as not, she follows through and e-mails answers directly to the students—part of La Salle’s effort to make its online recruiting initiative personal, not just personalized. “The key is personalization in a way that teens feel is personal, not the way we feel is personal,” says Steve Kappler at Stamats (www.stamats.com), a higher ed marketing firm. His advice: “Don’t fall in love with the technology when personalization is what they want.” www.campus-tecology.com/article.asp?ID=18583

WATCH THE DRYER

As of last spring, laundry life at Columbia University (NY) has changed dramatically. With a real-time web-based service called LaundryView (from “intelligent” laundry systems vendor Mac-Gray; www.macgray.com), students can log on to the LaundryView website from a link off the student information system (SIS) portal, to see which machines are free—even before they head to the laundry room. Students can use their campus debit cards to pay for the wash, can monitor a load’s progress from the same web page, and can even program the service to e-mail them when their load is done. According to Dave Roberts, director of information services for the school’s Department of Housing and Dining, student demand for a more efficient way to monitor the progress of dormitory laundry machines sparked the implementation. “On top of the fact that the service makes laundry easier to do, there’s a certain wow factor for students that makes it even better.” www.campus-tecology.com/article.asp?ID=18000

‘OPEN SOURCE’ YOUR PORTAL

Open source has changed everything about student computing at Lynn University (FL). In past
years, when students wanted to utilize mission-critical systems, they had to log in to separate systems to access basic functions (e-mail, course registration, financial aid). They couldn’t toggle from one app to another, but had to log out of one and log in to the next. Fed up with the disparate portal sites, CIO Christian Boniforti set out to centralize all student-oriented systems within a unique portal, and establish a single sign-on feature enabling students to access everything they needed. He opted for uPortal (www.uportal.org), an open source application built and designed centrally by JA-SIG (a federation of higher ed institutions interested in open source; www.ja-sig.org) but maintained locally by Lynn’s IT department.

Taking advantage of the customizable uPortal app, Lynn technologists created a new school intranet site, MyLynn (www.lynn.edu/mylynn), combining all student functions within one easy-to-access portal. Boniforti estimates that by utilizing open source, the university probably saved up to one-half of what it would have spent on vendor technology, and the system is so flexible, he says, his teams have been able to add functions and features every couple of weeks, always introducing something new. www.campus-technology.com/article.asp?id=18779

AID GOES VIRTUAL

Traditional, brick-and-mortar financial aid offices may soon be a thing of the past. Now, thanks to an educational financing option known as the Virtual Financial Aid Office (www.vfao.org), schools can outsource all or part of their student financial aid efforts online. The patent-pending service run by Weber and Associates (www.weberassocinc.com) is touted to eliminate all paper from the financial aid process. On the front end, students at participating schools sign up, log on, and complete a financial aid interview. On the back end, the VFAO communicates with its client school to make sure that the student is indeed attending, then prepares a financial aid award and originates a loan with a guarantor or bank.

President Harry Weber explains that the company specializes in managing Pell Grants, Federal Family Education Loans, and Federal Direct Loan processing for 30,000-plus students at more than 130 different institutions in 32 states, Guam, and Canada. He notes that the biggest benefit to outsourcing financial aid is cost savings; the VFAO enables schools to save big bucks on staffing and overhead, though they still must have a financial aid officer on campus to answer student questions. This individual has private and secure access to the system so he can know where a student is in the process at all times. www.campus-technology.com/article.asp?ID=18000

KNOW THY CUSTOMERS’ PAIN POINTS

Chicago’s DePaul University has taken strides to track and improve service to its students, faculty, and administration through the use of technology. DePaul’s Information Services (IS) department was tasked with examining how students interact with and view various university services. The goal: Identify solutions that would improve the overall student experience. The group worked with Touchpoint Associates (www.touchpointassociates.com) to create a customized Customer Experience Management (CEM) model for Higher Education, designed to help organizations understand their key customer experiences and identify specific ROI-driven projects. This model provided the framework for DePaul’s assessment.

The first step was to discover and organize students’ experiences based on the way they prefer to interact with the university (phone, in-person, web, etc.). Based on the rich data collected, new solutions were prioritized by the direct impact on student pain points. In 2006 the university began work on over 100 new initiatives, including basic process changes and development of new applications and systems that support the overall student experience. Solutions have been as simple as a change in paperwork collection and as complex as a new online degree audit application that allows students to track their academic success. The CEM model is used to inform and shape how the IS group builds and maintains systems for their internal and external customers (students, staff, and faculty).

VIRTUALLY REGISTERED

At Florida Community College at Jacksonville, students don’t have to leave their dorms to register for classes (a process that is still arduous at best at many of the nation’s colleges and universities). Under the direction of Rob Rennie, FCCJ CIO and winner of a Computerworld IT Leadership Award, the college (encompassing 24,000 online students and
64,000 total students) has created an interactive computer simulation in which students meet with advisers, register for classes, and take campus tours via the school’s online portal. This “virtual campus” incorporates avatars that guide every student through each process, asking questions and making recommendations based on each student’s profile. Needless to say, the kids feel right at home: The simulation is constructed on the same technology that powers many of today’s popular video games, allowing students to navigate an environment that is authentic and familiar. What’s more, FCCJ has effectively differentiated itself from peer schools and increasingly popular online universities, while fostering a greater sense of community among students.

SNACKIN’ ON THE WEB
At George Washington University (DC), the latest offering in online student services revolves around pretzels, potato chips, and soda. Thanks to a new third-party service, DCSnacks.com, students now have the ability to order their goodies online. This effort began back in January 2003, when then-GW student Matthew Mandell launched an online business enabling students to purchase snack food for delivery between the hours of 8 p.m. and 2 a.m. on school nights. At the time, the service met a huge need: None of the convenience stores on or around campus stayed open that late. Per student request, the school ironed out a deal with DCSnacks.com, giving students the capability to pay for their goodies with Colonial Cash, or the money stored on the debit strip of their GWorld Card ID cards. Today, students can log on to the website, order anything from tasty morsels to reams of printer paper, and pay for the transaction with their ID cards. When DCSnacks.com employees deliver the food, the employees check the cards to make sure the user matches the photo on the card, and upon positive authentication, they hand over the goods. www.campus-technology.com/article.asp?id=18000

GOOD IT ADMINISTRATORS SPEAK UP
According to Mike Yohe, executive director of electronic information services at Valparaiso University (IN), a CIO worth his salt must intelligently manage the burden of communication, if IT is to function properly, campuswide. “When things are going wrong, get out there and say, ‘I know this isn’t good. Here is what we are doing to fix it, and this is about how long it is going to take.’” Every Friday, Yohe also pens a newsletter that is sent to a campus subscriber list. It discusses what is going right, what is going wrong, what is coming up in the following week, and what is on the horizon. “I throw in a few things about how to manage a PC, or other tips,” adds Yohe. “It runs a couple of typed pages, and it’s written so that busy people can skim through it, find things they are interested in, and learn about places to get more information. It has my ‘voice’ and my return address. Even the student newspaper occasionally picks up items from my newsletter. It also has turned out to be a good way for me to keep in touch with what is going on in my own organization.” www.campus-technology.com/article.asp?id=18397

UNIFORM ACCESS TO INFO, FROM ANYWHERE
In the University of Alaska system, campuses and students are spread across a geographic area more than three times the size of Texas. Not surprisingly, the school needed to move a bevy of mission-critical administrative systems into the online space, for easier access. At the beginning of the 2003-2004 school year, officials under the leadership of CIO Steve Smith turned to SunGard Higher Education (www.sungardhe.com) for help. The vendor came back with a $4 million, five-year plan to put most of the services in the institution’s “administrative core” into a web-based portal called UAOnline. Next, after a stage of further enhancements that brought hardware vendor Hewlett-Packard (www.hp.com) into the mix, Smith and his development team rebranded the portal as MyUA. The current iteration of the portal boasts web-based e-mail for students, as well as access to systems for financial aid, course registration, and course management. It offers online applications, the ability to access online transcripts, and a direct tunnel into the UA library catalogs, as well. Smith says that the only real challenge thus far has been in tweaking the portal code so that each individual campus can add its own colors to the template. www.campus-technology.com/article.asp?id=18000

TRACK THOSE SHARED ASSETS!
When it comes to the tracking of IT assets—and the countless dollars saved by watching those equipment leases, expired software licenses, and the like—a new wrinkle has emerged: the complexity IT experts foresee in the tracking of shared assets. According to Stanford
University’s (CA) Ivonne Bachar, an authority on asset management who regularly speaks on the topic and is an instructor for and past president of the National Property Management Association (www.npma.org), administrators need to look carefully at all the IT “stuff” they have earmarked for collaborative efforts, and come up with tracking and management processes and tools to assist. “As we move more into collaborative business relationships with other universities, there has to be a way to track how those assets are shared, how they are funded, and what they are authorized to be used for. Often, Bachar points out, “tracking moveable assets, such as building and air conditioning systems. But it can be streamlined. Managing IT assets, she states, “can very effectively be a core business process.” www.campus-technology.com/article.asp?id=11043

SINGLE-SYSTEM ASSET MANAGEMENT
Most large schools use software for managing large depreciable assets such as buildings and air conditioning systems. But the software they’re already relying on may be able to manage campus IT assets, as well. Stanford University (CA) had implemented Sunflower Systems (www.sunflowersystems.com) as part of a larger campus overhaul of its financial management systems. The school (already using the capital assets management module) is now using the inventory asset management module, agreement assets module, and IT management module, as well. According to Ivonne Bachar, director of property management, because Sunflower interfaces with the school’s Oracle (www.oracle.com) back-end database and financials, a single repository of data can now be used for capital and sponsor-owned, as well as IT, assets. Stanford currently tracks IT assets and other items, plus the stewardship, accountability, and transaction history of sponsor-owned, donated, loaned and leased equipment. The school also uses its system for help with replacement planning and the disposition of assets. Tracking how IT assets are disposed of (with HIPAA and Sarbanes-Oxley regulations, confidentiality concerns, and security issues) can be hugely complex, says Bachar.

THE PERFECT RFP
To locate the best technology solution for your needs, a request for proposal (RFP) is key, yet it’s amazing how few are well-crafted. Experts agree that before you add on, every RFP should contain these six critical sections: 1) The synopsis or mission statement, which summarizes the technology problem and the solution required; 2) a list of technical requirements that outlines mandatory functionalities of a vendor’s solution; 3) the timeline for project completion, including deadlines for completed RFPs and incremental milestones; 4) a sketch of budgetary expectations, to give vendors a ballpark idea of what a school would like to spend; 5) specific information pertaining to warranties, payment schedules, and other “nitty-gritty” details; 6) legalese stipulating that the RFP is a full-fledged legal document enabling institutions to hold vendors liable for the solutions they promise therein. No one of these details is more important than the others, but the most important thing to remember: Be clear so that a vendor can respond in a way that you can evaluate. www.campus-technology.com/article.asp?id=18575

PARTNERING FOR COMMUNITY SOURCE FINANCIALS
Lee Belarmino (associate VP of IT) and his peers at San Joaquin Delta College (CA) have been instrumental in the development of Kuali financials (www.kuali.org), the first bold step for community source administrative software. After attending an Open Source Summit (hosted by rSmart; www.rsmart.com) and a presentation on Sakai (www.sakaiproject.org), Belarmino and his colleagues went to lunch with John Robinson, the founder of rSmart, and Barry Walsh, director of university information systems at Indiana University, and Delta now has a sizable commitment as a founding partner in Kuali: a half million dollars, between funds and dedicated resources.

The Kuali partners have since completed the first deliverable, the test drive (www.kualitestdrive.org). “The approach is service-oriented architecture, where you can tailor the system to your needs and have the ability to change,” says Belarmino. “And we’ve eliminated anything proprietary: You can get everything you need for Kuali development, free. By July ’07 or early ’08, we’ll have a full-fledged financial system, ready to install.” www.campus-technology.com/article.asp?ID=18927

ENROLLMENT MANAGEMENT MEETS PRIORITIZED CHALLENGES
Schools have all sorts of enrollment management challenges, and though it’s tempting to look for whiz-bang solutions, the more prudent (and usually more economical) route is to self-assess and carefully prioritize need. At the University of Cincinnati (OH), moving away from a paper prospecting/recruiting system (and its incumbent costs) was the goal, but administrators were looking for a system that would enable them to capture all prospective students in a single database via uploaded data files, manual data entry from telephone transactions or inquiry cards, and by students themselves via the school’s website. Importantly, the technology solution also had to integrate with the university’s student record system and keep bounce-backs to a minimum (the SIS was unique to the university), and so administrators needed detailed tracking capabilities. They also wanted prospects to receive attractive-looking e-mails. Finally, customer support was a priority; they could not afford the system going down.

Administrators chose Hobsons’ EMT Connect (www.hobsons.com), and claim that since they implemented the solution, average e-mail response rates increased from an
“abysmal” 3 percent, to between 20 and 30 percent. And e-mail communications saved over $100,000 in print production and postage costs. Clearly, the solution choice was a good fit, but the university’s methodical needs assessment was key.

STOP THE SWAP
In an initial wireless network pilot program at Charleston Southern University (SC), CIO Rusty Bruns discovered that unforeseen demands were bogging down the network. “We weren’t prepared for what students were doing in downloading music and DVDs,” he acknowledged. “We had about 550 users, and just 40 of them ate up the whole bandwidth.” To address the problem, the school installed Packeteer (www.packeteer.com), an appliance that monitors network traffic and allows individual access points to be controlled. File-swapping network activities are restricted, Bruns adds. “In the beginning, I was seen as the bad guy because I wouldn’t let students trade music. But in the long run, none of our students got busted for illegal swapping, so I turned out to be a pretty good guy.” www.campus-technology.com/article.asp?id=18927

OPEN SOURCE SIS: GETTING BUY-IN
San Joaquin Delta College (CA) Associate VP of IT Lee Belarmino thinks a community source student information system (SIS) is of paramount importance. “We believe this is the Big One, and [a system] we are anxious to [help create and implement]. We’ve had a number of meetings with the other interested schools about whether it’s feasible to build an SIS in pure service-oriented architecture and what kind of attention it would attract. Responses were quite positive. Plus, we’ve identified vendors who may be willing to partner with us on open source code, so we won’t be starting from scratch. But without question, Delta will be part of this next initiative.” How important is such a huge undertaking is presidential buy-in and pan-campus teamwork? And what part of such an effort is supported by know-how, what part by belief in what you’re doing? “My president and I have a great partnership,” Belarmino asserts, “and our team at the college is so good; they’re the ones making this happen. How much we believe in [open source] is a passion. We all believe that we’re onto something big: www.campus-technology.com/article.asp?id=18927

DATA MINING FOR ACADEMIC SUCCESS
Researchers at Purdue University (IN) are developing models to predict academic success: academic analytics that will eventually be used to create interventions for at-risk students. Their first step was to identify data that could be mined from the course management system (CMS) and from the student information system (SIS), and demonstrate which factors are most significant. Researchers studied an initial sample of about 1,500 students during the fall ’05 semester, and quickly expanded their work to reflect the entire range of WebCT-supported (www.blackboard.com) classes at Purdue in spring ’06. Analyses now include data on some 130,000 seats in the CMS, representing more than 30,000 students.

The researchers are rigorously examining indicators of aptitude and effort, by mining historical data such as SAT scores and GPA from the SIS (reflecting aptitude), and data on student use of the CMS from the Oracle (www.oracle.com) back-end database connected to their WebCT system (reflecting effort). Ultimately, the end goals are to develop intelligent agents that will automatically take actions (such as alerting the instructor that a student is likely in trouble, or notifying the student about help sessions that are available), and to provide trend data to administrators with an interest in retention. www.campus-technology.com/article.asp?id=18567

SUBJECT-MATTER EXPERTS FOR DATA WAREHOUSING
Key to building a data warehouse is bridging the longstanding gap between IT and business. More so than with many other technology solutions to business problems, data warehousing tests the bridges between IT and the rest of the campus. At the University of Illinois, for instance, the bridge between IT and business is largely handled by three “functional area coordinators.” These subject-matter experts...
focus on three key data areas: students, finance, and human resources. They act as liaisons between their areas of specialty and the data warehousing team. According to Aaron Walz, business architect for the Decision Support team, these individuals “translate what the customers are saying, putting that into a language that the technical staff can understand.” Yes, any significant IT initiative needs the business side of the house on board. But in such a case, IT really needs to understand what questions the business side needs to ask—and at a much higher level, because today, schools are looking to analytics. That means that the people who know how to produce reports—often highly technical IT staff within the DW group—need a deep and broad understanding of what drives the institute. www.campus-technology.com/article.asp?id=18953

INSTITUTION, ASSESS THYSELF
In the past, staffers at most schools carried out many assessment functions by hand. Nowadays, however, a growing number of schools are embracing data-driven web-based interfaces and new data analysis techniques to ease the process. Schools such as Texas A&M University, the University of Central Florida, the University of California-Davis, Western Washington University, and Flagler College (FL) are utilizing new advances in institutional assessment tools in order to improve performance across the board. Some have turned to vendors such as Jenzabar (www.jenzabar.com) and SunGard Higher Education (www.sungardhe.com) for help. Yet, interestingly, many notable advancements in institutional assessment are proprietary. At Texas A&M, for instance, technologists have developed a homegrown database, based on Microsoft Access (www.microsoft.com), to chart institutional performance by keeping tabs on what’s happening with faculty members. The database, which users can access from a web-based interface, tracks various stats about faculty productivity for publishing, grants, awards, editorships, classes taught, and graduate students completed. University administrators utilize data from the program to evaluate individual programs, certain clusters of departments, and sometimes even the school as a whole. www.campus-technology.com/article.asp?id=19146

CONSIDER ADMIN IT BY CONSORTIUM
Thinking about power in numbers? The Wisconsin Association of Independent Colleges and Universities (www.WAICU.org) is currently engaged in a six-year process to perform the administrative support functions of its 20 members on a collaborative basis. The object: to control institutional costs. Three members of WAICU (Lakeland College, Ripon College, and Wisconsin Lutheran College), with different constituencies and business processes, created the WAICU Educational Technology Consortium to purchase, implement, and support a common administrative system (provided by Jenzabar; www.jenzabar.com, via a fixed-price, not-to-exceed contract). The Milwaukee School of Engineering joined the consortium in May 2006. To date, the following savings have been realized on a per-school basis: software (80 percent), maintenance (40 percent); MSOE saved nearly $1 million over 10 years on maintenance costs alone. The first three schools went live in just 10 months instead of the usual 18. And by collaborating, the schools have also saved on implementation travel-related expenses and training, and have pooled resources, knowledge-sharing, and user group opportunities. All of this has resulted in increased buying power for future projects.

DW SUCCESS: MARKET THE RAISON D’ETRE
Part of the data warehouse challenge is the constant effort to explain its usefulness to users. “‘Build it and they will come’ is a very ugly myth,” says Aaron Walz, business architect for the Decision Support team at the University of Illinois. When the university erected its new systemwide enterprise resource planning (ERP) structure, some of the standard mainframe reports were duplicated, but not all. Even so, Walz says, users “still had to be convinced that coming to the warehouse was worth their time and that they needed it. You have to provide something that is very targeted to what they’re trying to do, so they can see that it’s helpful.”

His group puts ongoing effort into promoting the warehouse, including training sessions and periodic messages to everyone with a warehouse account, encouraging them to use it. The Decision Support team also analyzes who’s using the warehouse and how, and uses that information to drive marketing efforts. “We also make presentations to different groups on campus, such as human resources and business managers. We tell them, ‘Hey, here’s what you can do with the data warehouse.’” Walz says. “If it takes too much time, or if it’s too complicated to get access, they just don’t use it.” www.campus-technology.com/article.asp?id=18953
MORE DW HELP: ASK THE RIGHT QUESTIONS

One way that Rensselaer Polytechnic Institute (NY) uses its data warehouse is to track admissions closely by answering questions like: "Are we attracting the types of students we want? How well are we translating student inquiries into applications? How about converting those applications into admitting students?" When a new strategy for attracting students was introduced recently, the results were immediately available on a daily basis from the data warehouse via analytical dashboards. What’s more, because Rensselaer is a large research university, it finds the data warehouse useful for monitoring research, with questions like: "Where, exactly, is our research money coming from? Who’s performing the research—are they working through the university or the research center?" Unlike in the past (before new data warehousing systems and processes were put into place), "It’s very easy now to slice and dice, and everyone agrees on the numbers," says RPI Data Warehouse Program Manager Ora Fish. www.campus-technology.com/article.asp?id=18953

SCALING UP TO PAPERLESS FOR DISASTER RECOVERY PLANNING

At Pittsburgh State University (KS), a document imaging system, now deployed in 17 departments in two campus locations and including some 1.1 million documents, is helping to streamline processes, cut back paper-based storage, and even address disaster recovery planning issues. Using Perceptive Software’s ImageNow (www.imagenow.com) document management, imaging, and workflow software, university staff have single-click access to documents from either campus location. The system is managed by an administrative team at PSU that has employed a staged implementation strategy that began with just three departments—financial aid, undergraduate admissions, and the registrar—and allows a cost-effective expansion to a campus-wide solution.

And at Tulane University in New Orleans, where administrators would have to wade through student records for 11 colleges in the event of another disaster, the institution has deployed an enterprise content management (ECM) solution from Digitech Systems (www.digitechsystems.com). The system has enabled administrators to cut the standard three-day information access time by 66 percent, has allowed the university to regain 160 man-hours per month, has enabled vastly improved customer service, and has greatly boosted disaster preparedness. Three layers of application security ensure that users are only granted appropriate access to allowed functionality and data.

THE COMMUNITY SOURCE EXPERIENCE

Lee Belarmino, San Joaquin Delta College (CA) associate VP of IT, on the Kuali (community source financials; www.kuali.org) partnership experience: "Initially, we thought we might get swallowed up by the large universities involved [with the Kuali project]. But it’s clear to us now that it’s a level playing field. What’s important are your ideas, your ability to produce, and how you get along with the community. Another good thing," he adds: "We’ve found that Kuali is totally driven by the functional people. They decide how the system should operate and behave, and the developers have to come through. We’ve completed our first deliverable, which is our test drive [www.kualitestdrive.org]." www.campus-technology.com/article.asp?id=18927

POWER UP EVEN A TINY ADVANCEMENT OFFICE

Sometimes, improved revenue streams can be realized by empowering even the smallest college or university department. At Union University (TN), the Advancement office was being held back by an outdated legacy system, but administrators were concerned about transitioning the small (yet all-important) group of fundraising staffers to a new, more sophisticated system. The hardware platform was due to be discontinued, so administrators decided to take the opportunity to evaluate other software solutions; they went with Datatel’s Colleague Advancement (www.datatel.com), which offered the cleanest user interface.

“Our legacy system was not very user-friendly and the development officers had never been able or willing to learn the system,” says Director of Computing Services Karen McWherter; "A more user-friendly interface would help them to do their own data entry and information lookup. With the web user interface of the new system, they are going to be able to do that. We have a very small Advancement department, so getting everyone involved in using the software will make them all more effective.” CT
Annual fall meeting stirs hopes for the future

Educause 2006

More Work Ahead on the Internet. At the annual Educause (www.educause.edu) conference this fall in Dallas, Vinton Cerf delivered the opening keynote—sporting the academic regalia of the University of the Balearic Islands (Spain), from which he received an honorary degree in computer science. One of the principal developers of the internet’s foundation technologies, Cerf is now helping to shape the network’s future as Google’s (www.google.com) “chief internet evangelist.” He reminded attendees that there’s still a lot of work to do before all 6.5 billion citizens of the world can have internet access, and he challenged the computer science community to tackle some of the really hard problems in computing and programming.

Future Vision. A featured panel session on “Pioneering New Territory and Technologies” was dedicated to the memory of Howard Strauss, former manager of technology strategy at Princeton (NJ), who this year posthumously received Educause’s Leadership Award for “visionary, entertaining, and provocative thought leadership in the world of higher education information technology.” Panelist Malcolm Brown (Dartmouth College; NH) told Campus Technology, “I hope our work here is worthy of his legacy.” Above, left to right: Saiid Ganjalizadeh, The Catholic University of America (DC); Leslie Hitch, Northeastern University (MA); Malcolm Brown; Christine McMahon, Saint Louis University (MO); and Pablo Molina, Georgetown University (DC).

Action on the Floor. Exhibitors from virtually all technology sectors lined the aisles of a large exhibit hall to show off their companies’ technology visions.

Local Color. There was plenty of just plain fun, too. From his perch atop a live rodeo bull, Datatel (www.datatel.com) President and COO John Speer treated clients to a Texas-style barbecue outing—complete with cattle roping and armadillo races. CT
New Laser Printers

**Lexmark** has introduced two new series of printers: the *C530* color laser series and the monochrome *E* series. The *C530* series (model *C534n* pictured) includes a new eco-mode function, which minimizes power consumption and paper waste, and features high-yield 7,000-page color toner cartridges that lower the cost of printing per page. The *E* series includes a quiet-mode function that reduces printing noise and an instant warm-up function, suitable for classrooms or libraries that need a quiet, fast monochrome printer. Prices for the *C530* series start at $499; the *E* series starts at $199. [www.lexmark.com](http://www.lexmark.com).

Free Data Visualization App

Business intelligence vendor **Business Objects** has launched *CX Now!*, a lightweight version of its *Crystal Xcelsius* data visualization software. *CX Now!* allows users to transform Excel spreadsheets into interactive charts and graphs of trends and projections, audience-friendly presentations of complex data, and dynamic dashboards that display multiple business variables. The application can be downloaded for free at [www.cx-now.com](http://www.cx-now.com). [www.businessobjects.com](http://www.businessobjects.com).

Wireless Presentation Tool

**Hitachi Software** has announced the *StarBoard BT-2G Bluetooth Wireless System* tablet, equipped with an interactive pen tool and compatible with *StarBoard* interactive *T-17SXL* and *T-15XL* panels. An extended range of up to 65 feet and battery life of 24 hours give presenters extensive roaming capability. Compact tablet weighs about one pound and features a writing resolution of 1000 lpi, which is twice the resolution of its predecessor. Price: $295 for tablet; $550 with software. [www.hitachi-soft.com](http://www.hitachi-soft.com).
Managing Blog Content

WebsiteASP, a provider of web content management systems (CMS) for higher ed, has released OU Blogs, a blogging solution that combines the company's OmniUpdate CMS solution with the WordPress open source blog publishing system. Offered as an optional module to OmniUpdate, OU Blogs allows entries in WordPress blogs to be monitored for appropriate content, using OmniUpdate’s workflow and approval system. E-mail notification is automatically sent when blog entries are ready for approval. Pricing starts at $5,000. www.omniupdate.com.

On-Demand Digital Media

Cdigix, a provider of digital media services to the college marketplace, has announced Clabs 2007, the latest version of its digital media educational platform. New features include: Clabs Library, a repository of more than 125,000 video titles, with a search interface that allows university administrators to purchase media for processing into their own Clabs service; Clabs Podcasting, allowing campus-produced content to be posted into Clabs in MP3 or MPEG-4 format; and Clabs Community, enabling a participating university to post institution-owned media into a shared pool that is available to other Clabs partner institutions. Pricing includes a yearly license and one-time per-title encoding fee, based on the volume of titles per year. www.cdigix.com.

Tracking Camera and Microphone Array

Unified collaborative communications vendor Polycom has introduced the PowerCam Presenter, a wireless tracking camera solution, compatible with any videoconferencing system, that uses patent-pending ultrasonic technology to wirelessly track, automatically focus, and zoom in and out as an instructor moves around the room. Additionally, Polycom’s new HDX and VSX Ceiling Microphone Arrays provide 360-degree room coverage and stereo audio from a single array. Together, the solutions enable freedom of movement for instructors in distributed learning environments.

**Content Authoring**

eCollege, a provider of value-added information services, has announced the upcoming release (in phases, beginning this winter) of *Content Manager v3.0*, the latest version of its solution for centrally managing, standardizing, and reusing content across multiple programs, courses, and sections. Advancements include: selective publishing, allowing faculty and administrators to change and update content items for future terms without affecting current course content; added roles for rights functionality, providing more options for assigning course development responsibilities; and version control, easing the content authoring and editing process. Priced per enrollment. www.ecollege.com

**GOOD NEWS FOR SCHOOLS** in need of high-end projection capability! *Campus Technology* magazine will be following the campus use of four Canon (www.canonprojectors.com) REALiS SX6 multimedia projectors—equipment that boasts new levels of razor-sharp projection for intricately-detailed applications (including small text)—to see how advances in “smart” classroom technology (such as Canon’s brand-new “AISYS Enhanced” LCOS technology) are actually impacting classroom work. Results of the study will be covered in the magazine and on our website. The editors of this publication will select four (4) schools to be the lucky recipients of the projectors; the projectors will become the property of the schools. We are looking for venues with super-high-resolution requirements (SXGA+): medical schools, schools of engineering, art/design/architecture schools, and the like. Interested schools should submit a brief explanation (100 words or less) of study environment and need, emphasizing compelling study challenges and innovative use of the projection technology. Special consideration will be given to programs with budget constraints. **E-mail entries to:** rkelly@1105media.com, by December 30, 2006.
Let us know how your area(s) of expertise might fit with our conference program goals.

Not sure where your topic belongs? Feel free to suggest any relevant session topic with your response.

Notification of acceptance will be made by February 15, 2007. Proposals will only be accepted electronically.

To submit a proposal to present at Campus Technology 2007, see complete guidelines and instructions at www.campustechnology.com/conferences/summer2007

Don't delay! Proposal deadline is December 15.
2007 SHOWS TO KNOW

General
American Association of Community Colleges
87th AACC Annual Convention
April 14-17; Tampa, FL
www.aacc.nche.edu

Association of American Colleges and Universities
2007 AAC&U Annual Meeting
Jan. 17-20; New Orleans, LA
www.aacu.org

Educause 2007
Oct. 23-26; Seattle, WA
www.educause.edu

Macworld 2007
Jan. 8-12; San Francisco, CA
www.macworldexpo.com

League for Innovation in the Community College
2007 Conference on Information Technology
Nov. 11-14; Nashville, TN
www-league.org

Educause
Seminars on Academic Computing
Aug. 3-8; Snowmass Village, CO
www.educause.edu/sac

Connectivity
Association for Communications Technology Professionals in Higher Education
36th Annual Conference and Exhibition
July 29-Aug. 2; Hollywood, FL
www.acuta.org

Interop Las Vegas
May 20-25; Las Vegas, NV
www.interop.com

RSA Security
RSA Conference 2007
Feb. 5-9; San Francisco, CA
www.rsaconference.com

The SANS Institute
SANS 2007
March 29-April 6; San Diego, CA
www.sans.org

Smart Classroom
Blackboard
BbWorld '07
July 7-12; Boston, MA
www.blackboard.com

The Community College Foundation
TechEd 2007
March 25-28; Ontario, CA
www.techedevents.org

Educause Learning Initiative
ELI 2007 Annual Meeting
Jan. 22-24; Atlanta, GA
www.educause.edu/eli

InfoComm 2007
June. 15-21; Anaheim, CA
www.infocomm.org

New Media Centers
2007 NMC Summer Conference
June 6-9; Indianapolis, IN
www.nmc.org

Admin IT
American Association of Collegiate Registrars and Admissions Officers
AACRAO 2007 Annual Meeting
Feb. 28-March 3; Boston, MA
www.aacrao.org

Association of College and University Auditors
2007 Annual Conference
Sept. 30-Oct. 4; Atlanta, GA
www.acua.org

College and University Professional Association for Human Resources
CUPA-HR National Conference and Expo 2007
Nov. 8-11; Baltimore, MD
www.cupahr.org

Council of Independent Colleges
2007 Presidents Institute
Jan. 4-7; Tucson, AZ
www.cic.org

The Data Warehousing Institute
TDWI World Conference
(Winter) Feb. 18-23; Las Vegas, NV
(Spring) May 13-18; Boston, MA
(Summer) Aug. 19-24; San Diego, CA
(Fall) Oct. 28-Nov. 2; Orlando, FL
www.tdwi.org

National Association of Campus Card Users
NACCU 2007
March 4-7; Atlanta, GA
www.naccu.org

National Association of College and University Business Officers
NACUBO 2007 Annual Meeting
July 28-31; New Orleans, LA
www.nacubo.org

National Association of College Auxiliary Services
NACAS 39th Annual Conference
Oct. 28-31; Las Vegas, NV
www.nacas.org

National Association of College Stores
CAMEX 2007
March 23-27; Orlando, FL
www.camex.org

Oracle
Oracle OpenWorld 2007
Nov. 11-15; San Francisco, CA
www.oracle.com

Society for College and University Planning
SCUP-42: Annual International Conference and Idea Marketplace
July 7-11; Chicago, IL
www.scup.org

Campus Technology 2007 Annual Summer Conference
Jul. 30-Aug. 2; Washington, DC
www.campus-technology.com/conf
HIGH DEFINITION HEIGHTENED FOR THE EDUCATION ELITE.
Understanding starts with clarity. Beyond a superior visual experience, LG's premium products offer the industry's widest viewing angles, largest monitors and greatest breadth of displays to let you clearly relay brilliant content to learning minds in any educational environment. Find more equally compelling reasons why we're ahead of the class at LGcommercial.com or call 1-888-865-3026.
Worried about taking that first step into unified communications?

It doesn’t have to be painful to migrate the old voice mail system on your campus to a new unified communications solution. CallXpress® from AVST helps you transition to an IP world at your own pace. And it minimizes user training, because CallXpress can often emulate the interface of your existing system. These are just two reasons why AVST offers the most economical and flexible solution for the higher education market. To find out more, hotfoot it over to our website where you can order our Education Resource CD. Simply visit www.avst.com/education or call 949.699.2300 today.

© 2006 AVST. CallXpress is a trademark of AVST. All other company names, brand names and product names are the property and/or trademarks of their respective companies.