Engineers and Ivory Towers

Observations on Benchmarking Information Technology Support

Managing Technological Change in Academe

Rolling Out a Data Warehouse Quickly at UMass: A Simple Start to a Complex Task

Evolution of SOLAR, Harvard’s Client/Server Fundraising Management System

Trends and Challenges for Academic Libraries and Information Services

PLUS:

Why Your Campus Should Consider Adopting OSF’s DCE Standards

DCE: A Foundation for Administrative Software Collaboration in Higher Education

Campus Profile:
Seattle Pacific University
Founded in Seattle, Washington, in 1891 under the sponsorship of the Free Methodist Church of North America, Seattle Pacific University (SPU) today is a small, comprehensive university with a full-time enrollment of 2,850 students. SPU offers forty-five undergraduate majors, eleven master’s degree specializations, and one doctoral program through a College of Arts and Sciences and three professional schools: Business and Economics, Education, and Health Sciences.

Seven years ago, Seattle Pacific University began a series of substantial investments to build an information technology infrastructure that would improve administrative productivity and enable SPU faculty and students to teach and learn in an information-age environment. To date, those investments have totaled over $5.5 million, nearly $2 million of which has come from gifts to the University.

Investing in IT: 1988-1992

The first significant gift SPU received, in 1988, was one for $1.2 million from the Digital Equipment Corporation, which was parlayed into $2.5 million of purchasing power. This allowed SPU to move quickly from outdated PDP-11 systems to a DEC VAX environment, all within a year’s time.

By the spring of 1989, the first phase of a major campuswide fiber optic network installation had begun, and that fall an Information Systems Long Range Plan outlined some of the key planning areas that needed to be addressed over the next few years. By late 1990, a decision had been made to purchase SCT’s Banner systems for student records and financial aid, after a thorough investigation of available packages had been conducted and a consultant had affirmed that Banner running under Oracle on DEC VAXes was a suitable choice for SPU.

By the summer of 1992, with the administrative systems implementations well under way and the University engaged in an institution-wide five-year strategic planning process, the All-university Computer Planning Committee (ACPC) turned its attention to educational technologies. The plan developed by the ACPC, called Technologies in Education, emphasized the need for a coordinated strategic planning process, as well as increased and sustained funding, for technology at SPU, and included a vision statement to guide future technology investments: “The vision for educational technologies at Seattle Pacific is to bring technology into the fabric of the learning process.”

One of the key features of the plan was that information technology proposals were tied directly to five long-range goals that had been identified in the University’s strategic plan: improving academic reputation, achieving enrollment goals, improving academic program quality, implementing a faculty development program, and establishing student quality and selectivity goals. The following priorities were defined as essential to meeting those five goals:

- get computers into the hands of students
- provide most faculty with a computer
- provide campus access to wide-area networking
- install a library automation system
- refocus computer labs to meet specialized curricular needs
- improve ongoing hardware and software support structure for repair and replacement
- integrate educational technology into academic classrooms

Building Infrastructure: 1992-1994

According to David Tindall, executive director of Computer and Information Systems (CIS), by late 1994, essentially all goals of the plan had been met. Every faculty member now has at least a 486-level desktop computer and high-speed Ethernet connection, and microcomputers in student labs have been upgraded and refocused. Over 80 percent of the more than 1,000 PCs and terminals on campus are connected to SPUnet, a fiber-optic backbone network that links essentially all primary campus buildings. A PowerHUB switch does full routing, which makes it possible to have Internet Protocol (IP) on every desk and allows for the potential of ATM technology in the future. Tindall explains, “Our song used to be ‘four pair everywhere’ and now it’s ‘IP everywhere.’”

For the past two years, emphasis has been placed on wiring residence halls. Every dorm room is provided a telephone, voice mail, a cable TV jack, and computer network connections. An innovative partnership with TCI facilitated this wiring project, with SPU agreeing to purchase cable programming and TCI underwriting two-thirds of the construction costs to install the cable while providing the network wiring for computer connections (worth over $100,000 to the University). Included in the package were four SPU-dedicated channels, laying the groundwork for delivery of University-driven content.
CIS continues to provide central printing services, but these are now delivered via a Xerox DocuTech machine instead of the high-speed laser printer formerly used, and for a cost that is not much higher than in the past. Now documents throughout the University can be kept up to date online and printed and bound on demand—a capability that is already proving cost-effective and efficient for many campus departments.

Another significant donation to the University came by way of Microsoft Corporation’s matching-gift program. When an SPU alumnus employed by Microsoft elected to donate licenses for Windows for Workgroups and Office Professional, the University received $139,000 worth of software. This software was initially installed on faculty computers and later installed throughout the campus.

Standardizing on a set of software for all campus users greatly facilitated user training for these tools. CIS was able to negotiate a contract with an outside vendor to offer a substantial training program of introductory classes for all of the various software packages. With the endorsement of SPU President C. Arthur Self, who went on record about the importance of learning to use these new tools, the program has been a great success.

Another major addition to infrastructure was the completion of the new SPU Library in July 1994. A converging point for the traditional academic setting and technology, the building provides the campus and community with a state-of-the-art facility into which significant technologies have been built: fifteen online catalog terminals, twelve CD-ROM stations, sixty computers in student labs and classrooms, and wiring that enables access to the campuswide network and beyond. In addition, the library acquired and implemented Data Research Associates’ automated library system.

Today’s Challenges: Content and Utilization

In Tindall’s view, IT planning to date has revolved around “bits and bytes, hardware and wires,” but now it must begin to address content and use: “We’re in the content business now—not that we create the content, but we enable easy access to content by developing the necessary tools and architectures.” Applications such as e-mail, access to the Internet, Gopher, and World Wide Web are heavily used by SPU faculty and students, and now that the infrastructure is in place, a key value of IT—information access—is in the spotlight.

An important task for Computer and Information Systems is to organize and manage the providing of content by appropriate content “stewards.” Whether it’s the student directory, the online library catalog, scholarly or research results, or information extracted from administrative databases, people will increasingly expect to access information through Web-like technology. Tindall says, for example, that just about everything in the Banner legacy systems is ready to turn over to the user via the network, and the issues that remain are not so much technological as policy-related.

Vice President for Enrollment Services Marj Johnson believes the fundamental value of IT—and rationale for SPU’s heavy investment in integrated student and financial aid systems—is the ability to bring information together at one point in service to the student, instead of sending the student to many different places. One of the University’s administrative challenges, in her view, is utilizing technology as a tool, to be more effective: “We have to remind ourselves that if it’s not useful to a purpose we hold dear, then we ought not to move in that direction.”

For any academic institution, there comes a time when IT utilization questions become focused on teaching and learning. For Phil Eaton, vice president for academic affairs and provost, the “end” of technology ought to be defined in terms of SPU’s educational purpose and mission. He has created a task force to first articulate an educational vision, and then define how those who have technical expertise can help to support that vision. “We must do our work in higher education differently in the future,” he says. “We simply cannot go on doing what we are doing the way we are doing it. When you look at spiraling costs year after year, something has got to give. I believe that technology will be very influential in the change in the way we do business.”

SPU has an increasing interest in distance education as a potential solution to the challenge of accommodating its share of an estimated 45,000 new students in the Puget Sound area by the year 2010. A small urban university with no room to grow physically, President Self says SPU cannot afford delivery of education in the future to be time and place bound. The University is investigating two-way interactive video technology to deliver classes simultaneously to multiple locations, and it may be that
a partnership with the Boeing Corporation—which has an interest in SPU providing training to its employees—will result in another creative funding mechanism to provide the infrastructure for more sophisticated distance education in the future.

Information Resources Management

CIS has evolved dramatically over the last few years. Formerly primarily an administrative computing organization with large-computer operations responsibilities, this central information technology organization now additionally oversees voice and data communications (both the conduit and the services), microcomputer support, user services, and the University’s printing and mailing services. Although there currently is no central academic computing planning function, there are several centralized functional activities, such as networking in academics, software maintained on academic servers and in student labs, telecommunications across campus, and so forth.

Assignments and accountability for centralized services are managed within four CIS teams: Microcomputer Systems Support, User Services, Administrative Software Development and Support, and Central Systems Maintenance and Support.

Pervasive network connectivity has dramatically changed the environment at SPU; consequently CIS’s approach to services is changing. Most of their functions now relate to serving users. Tindall estimates that this shift to “customer service” means CIS has gone from serving 150 to 3,000 users in five years, i.e., from a handful of central-office users to the entire campus. To accommodate this shift, staff needed to be refocused, no longer simply writing code but now acting as “middlemen” between the application and the user who has some very specific needs. Now that the infrastructure is in place, Tindall says, “Our job is becoming helping people figure out how to use the tools effectively.”

Vice President Johnson adds, “Our real management challenge comes in managing the culture change. When we implemented student and financial aid systems, we realized we had to have a good marriage between functional and technical components for the systems to work. We instituted the Computer Service Manager concept—individuals at the department level who could understand enough of both function and technology to make it work. This has been a very successful program; it helped people change the way they think about their work.”

Planning for the Future

Don Mortenson, vice president for business and finance, to whom Tindall’s organization reports, is a firm believer in the need to plan for and manage information technology appropriately to avoid its consuming too many resources. At the same time, he acknowledges the need to do a better job of institutionalizing funding for maintenance and replacement: “It’s not that difficult to get donors for the initial IT acquisitions, but repair and upgrading costs need to become part of your ongoing budget.”

In discussing how technology is being provided over the whole university, Vice President Eaton’s task force has recognized the lack of a sufficiently unified planning approach at SPU. Although numerous specialized small advisory groups are engaged in different aspects of planning for IT, the group identified a need to do more overall planning for the management and use of technology campuswide, and recommended a structure they believe will provide the ability to strategically move forward in a unified way. President Self shares this view: “Planning for information technology is moving from a marginal to a more centralized, core activity—such planning decisions are becoming mainstream. Certainly we cannot plan strategically for academic arenas, or for buildings and facilities, without considering technology. It’s much more pervasive than it used to be.”

The recently adopted planning structure will create a highly focused Technology Advisory Group that will be appointed by the provost and will report directly to the President’s Cabinet. This group will ensure that technology plans at the department level fit into the institution’s overall vision and strategic plans, and that ongoing support for IT continues at an appropriate level.

In summarizing the role of CIS today, Tindall says, “We are not data processors; we are information technology providers. We’re in the business of providing tools, teaching how to use them, and encouraging their use. Providing infrastructure is important, but if it ends there, the IT organization has failed in its calling.”

The planning documents referenced in this article, as well as a residence hall technology services guide and a network users’ guide created by CIS staff, are available from the CAUSE Information Resources Library (call 303-939-0310 or send e-mail to orders@cause.colorado.edu for ordering details). The network users’ guide is also available on SPU’s gopher [gopher://gopher.spu.edu] and World Wide Web [http://www.spu.edu] servers.