



AU

Unplugged

American University is shedding its "most wired" title in pursuit of becoming the *least* wired campus in the nation. **BY DONALD L. MYERS**

STUDENTS ARE HARDLY IMPRESSED THESE DAYS BY TOUCH-TONE PHONES IN RESIDENCE HALLS. ACCORDING TO THE FEDERAL Communications Commission, 61 percent of 18- to 24-year-olds in the United States carry cell phones. BearingPoint (formerly KPMG Consulting) projects that 85 percent of all college students will use cellular service by 2005. At American University, 78 percent of students who live on campus own cell phones.

Like many universities, AU has scrambled to stay ahead of the sophisticated expectations students have for technology services. It has done so by wiring classrooms and residence halls for its 10,000 students and providing the fastest electronic communication access possible. In recent years, AU has increased its system capacity from 100 million to one billion bits per second, extended fiber optic capability to five off-campus locations, and expanded Internet connectivity tenfold. For such efforts, American was recognized in 1997 by *Yahoo! Internet Life* magazine as 1 of the 50 most wired campuses in the nation.

But this year AU is pulling the plug.

The notion to walk away from conventional communication systems altogether grew out of the university's overarching strategy to improve facilities and technology services to support students in voice and data communications. A pilot program launched in March 2002 implementing wireless services in two campus buildings has since expanded to all major academic buildings and residence halls (see sidebar, "Pilot Partnerships"). Completion of the entire project—including installation of 13 miles of cabling in 40 buildings—is set for May 2003.

While many other universities offer wireless access for personal computers, AU is expanding the concept to include cellular telephone service. By all available accounts, no other university has made similar arrangements with multiple wireless telephone carriers to provide dedicated cellular telephone capacity in an in-building campus environment. Other entities have tested the waters—from airports to the offices of the U.S. House of Representatives, which is considering the same system AU has

adopted. With high-tech companies envisioning not only instant messages but also full Internet access and e-mail capability from laptops, personal digital assistants (PDAs), multi-functional cell phones, and a variety of devices not yet invented, wireless telephone networks are quickly becoming not only a thing of the future but a must-have now.

Wireless Infrastructure

Fortunately, the forethought that AU had when it networked its campus to become one of the most wired universities has allowed it to leverage that earlier investment to become today's most wireless campus. By installing a distributed antenna system with multiple antennas on each floor of a campus building, AU technicians have expanded the university's existing fiber optic network, multiplying its capability many times. With this integrated system, students campus-wide can now not only use the Internet on their unplugged laptops, but can also use cell



Wise partnerships with a broad spectrum of wireless technology providers have paved the way for American University's evolution from wired to wireless campus. Establishing such relationships was one of the biggest challenges AU administrators faced.

The university worked hand-in-hand with BearingPoint to develop a methodology for bringing various vendors to the table. All major cellular service companies were approached for inclusion. While each agreed that the concept was a winner, they didn't know how to reach out to the software, middleware, hardware, and infrastructure providers to network the system. Several different partners and much persistence were required to create a mutually supportive environment for success.

AU worked closely with BearingPoint during a pilot program involving two of AU's 48 networked buildings, including the Kogod School of Business and Hughes Residence Hall, which houses 318 students. Foxcom Wireless installed the distributed antenna sys-

tem; Cisco supplied infrastructure such as access points, hubs, and switches; Nokia provided handsets; and iPAQ Pocket PCs came from Compaq Computer. AU partnered with Cingular Wireless during the pilot and arranged for cellular service discounts to students, thereby luring them away from landlines. (Cingular has since upgraded its network by installing additional cell sites on campus that are enhanced by the antenna system.) Finally, discounts on computer hardware such as laptops and wireless cards from Compaq, Dell, and IBM were made available to students.

Other important players during the pilot included the dean of the business school, a graduate student, and a professor willing to experiment with new technology. Together they enthusiastically endorsed the expansion of wireless communication at AU, confirming what the university already suspected—that AU's student population is eager for wireless innovation.

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phones and handheld computers in even those hard-to-penetrate buildings once notorious for losing phone signals. This is accomplished by transmitting a broad range of radio frequency signals through a special network that uses the existing fiber optics spanning AU's 84-acre campus. Any laptop with a wireless access card—easily installed on most units—will be equipped to take advantage of the new network.

The ability for students to key in to an online class discussion or check e-mail from a project partner from anywhere on campus would be reason enough to adopt the new system. The change also presents opportunities for innovation among professors interested in expanding their technological resources. Before the wireless installation, all AU classrooms provided Internet connection, but only four had wired capability where students could integrate their laptops with the lecture or lesson. Now every classroom will have that capability, and professors can lead entire classes through Web-related material.

A wireless campus also creates more immediate access to administrative information. With laptops, PDAs, and cell phones, students will have access to grades, course schedules, financial aid information, and student accounts. Staff and faculty will use the system to check time sheets and payroll information. The system will be protected from hackers by encryption and limited to use by AU students, faculty, and staff with current IDs and passwords. Eventually AU will use the system to communicate with the university community instantaneously by flashing messages on cell phone and PDA screens to announce class scheduling changes, weather emergencies, and special events.

Branding the Cell Phone Plan

A survey and a feasibility study conducted prior to the pilot project indicated that wireless installation would be popular at AU. Seventy-five percent of students on campus using cell phones said that, given the opportunity, they would switch to an AU-branded cell phone plan. For off-campus students, the rate was even higher: Nearly 90 percent said they were interested in the AU program. Students were eager to use the wireless services for message retrieval, domestic and international long-distance calling, instant messenger and text messenger functions, wireless purchasing, laptop modem capability, and Web access.

An AU-branded cellular phone plan for students will be launched in early 2003. Plans call for cellular service to extend to faculty, staff, and possibly even alumni. AU sees the added value of including alumni as an opportunity to continue relationships that often end once people leave campus. A discounted cell phone plan might be a popular draw for keeping alumni connected.

Show Me the Savings

After carefully analyzing the numbers, AU found that the \$2 million investment in the wireless project is a far better bargain than the cost of maintaining a wire-line telephone system in every residence hall. For one thing, repairing and replacing telephone lines and switching equipment will be a thing of the past. While many institutions have traditionally made small profits by providing phone services on campus, more often today university administrators are losing money on dormitory-based phone systems as more students abandon traditional telephones in favor of convenient cellular services.

By moving to keep up with that market, AU is not abandoning its past investment in wired services. The university saved substantially on installation costs for the wireless network by using its existing fiber optic network. The distributed antenna system reduces the number of network access points needed, with each antenna acting as a multiplier for fewer access points. In fact, the antennas cost up to 90 percent less to install than more traditional access points—a tremendous savings for the university.

By the end of 2003, AU will begin reducing its number of local telephone trunk lines. The university expects to pull the plug on half of its wire-based telephones within two or three years, further propelling the campus community toward complete wireless communication. Administrators have already stopped investing in a wired voice network. By outsourcing some of its communication services, AU has even found a way to reduce both its initial capital investments and annual operating costs. With such savings, AU anticipates that the cost of adding voice capability to its wireless project will pay for itself within five years.

Universities—as host to the population most comfortable with and hungry for technology today—are an undeniably hot market for wireless services. More young people are accustomed to high-speed broadband connections and will expect to find these services when they move to campus. A wireless network is perfect for institutions eager to keep up with an increasingly technology-savvy student population.

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