

# The University of Arizona



## Customer

The University of Arizona

## Industry

- Higher Education

## Challenges

- Multiple, disparate Wi-Fi systems
- Dropped connections
- Inadequate coverage
- Aggressive implementation schedule
- 12-million acres of campus

## Solution

- Project management: NEC Professional Services
- Network design & implementation: NEC Infrastructure Services
- Wireless Network Solution: Cisco Unified Wireless Network
- Ongoing management & support: NEC Remote Managed Services

## Results

- Largest university wireless system in the US
- Single, campus-wide solution
- Superior network security
- \$1M in cost savings
- Scalability, as needed
- Increased student satisfaction

The millennial generation is entering college with an increasing amount of technology savvy. As more of these digital-age students matriculate, institutions of higher education will have to incorporate new technology into the classroom as well as non-academic spaces throughout campus.

The University of Arizona, one of the nation's top-ranked research institutions, has a student enrollment of more than 38,000. Located in Tucson, the university employs more than 13,000 faculty and staff and is the largest public employer in southern Arizona. The University of Arizona—with the help of NEC Professional Services—implemented a single, campus-wide wireless network, creating the largest university wireless system in the US, to date.

## Challenges

The University of Arizona (UA) had a number of small, disparate Wi-Fi hotspots scattered around campus, which fueled a number of complaints from the student body. Articles in the campus newspaper described UA's wireless LAN as “second-rate” with “too many systems and not enough coverage”. Students wrote letters to the editor expressing dissatisfaction with dropped connections and having to log in multiple times as they entered Wi-Fi hot spots.

Everyone within the university administration agreed something had to be done and soon. “These days, students come to campus with certain connectivity expectations” says Michele Norin, university CIO and executive director of University Information Technical Services (UITS). “An institution known for outstanding research like ours must offer its students outstanding technology and that includes a wireless network.”

Funding was initially a challenge. “Once we decided a campus-wide wireless network was essential, the next question was how to pay for it,” says Bob Lancaster Director of Network Technical Solutions, a unit reporting to UITS. After surveying the student body, Lancaster and his group found that students were willing to pay a technology fee to help fund the wireless project.

## Challenges (cont.)

UA wanted to begin implementation before it began including the new, student-technology fee in tuition for the upcoming fall semester. This, however, created another challenge. “We had summer school sessions going with thousands of students on campus,” says Lancaster. “Logistics were crucial.”

UA sought a single, ubiquitous wireless network solution that would span its 12 million-acre campus. The university also sought a provider who was able to efficiently complete the implementation in less than two academic school years.

## Solution

UA selected NEC to manage all aspect of the wireless project, including selecting an infrastructure vendor, network design and implementation. NEC chose a wireless solution from Cisco for UA. “NEC handled a smaller but similar wireless project for the Sky Harbor at the Phoenix Airport—its proven project-management skills were key,” says Lancaster. “We were also impressed by NEC’s Cisco Gold certification, breadth of vision, engineering excellence and ability to meet our aggressive schedule.”

UA implemented the first phase of its wireless project during the campus’s twelve-week summer semester. The school worked with NEC’s team of engineers and Cisco to perform wireless predictive surveys for the entire campus—an approximate 12 million square feet. “The NEC team worked tirelessly with us to get permission for site surveys,” says Lancaster. “At the same time, the NEC/Cisco team installed 1450 wireless access points in 12 buildings, creating a wireless system that covered approximately two million square feet of the campus.”

Over the next academic year, UA implemented the second phase of the project, bringing wireless service to an additional five million square feet of the campus. The final phase was done the following summer, where the university added 22 residence halls, 15 classroom buildings as well as the basketball arena and the football stadium bringing system coverage to seven million square feet with 4,560 APs.

“Thanks to NEC and Cisco, we now have a world-class secure and scalable wireless LAN-based voice and data network,” says Norin. “With seven million square feet of coverage, this is the largest wireless system of any university as far as we know.”

NEC provides remote monitoring and management of UA’s IP system as part of its Comprehensive Remote Managed Services. NEC also administers the university’s maintenance contract and performs Cisco product fulfillment chores.

## Results

The University of Arizona implemented its wireless solution within its specified timeframe. “We would not have achieved our aggressive deadlines without NEC’s engineering expertise and project-management skills,” says Lancaster. “This has truly been a partnership between UA, NEC and Cisco,” adds Norin.

UA’s design and implementation was also cost-efficient. “In one day of brainstorming, NEC and the UITS came up with \$1 million worth of savings,” says Lancaster. As a result, UA’s wireless project was funded mostly by the student technology fee. “We really appreciated NEC’s flexibility, enthusiasm and willingness to always find a better way of doing things,” continues Lancaster.

The NEC team’s network design included security that incorporates 802.1x authentication using WPA2 and WPA, AES and TKIP encryption. “Working with NEC, we produced a wireless system that is more secure than our wired environment,” says Lancaster.

UA’s wireless infrastructure lays the foundation for additional value-add technologies. Lancaster and his team are planning to install mobile Unified Communications applications, including presence, dual-mode mobile devices and RFID asset tracking. “We’re already using the wireless system to track buses,” says Lancaster. “We send text messages to student devices so they won’t miss the bus.” Ticket-takers at UA athletic events are also using wireless-enabled devices that work on the VoIP network.

“As for the future, I’m convinced when we get there, NEC will have the solution we’re looking for,” concludes Lancaster.

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