Wake Forest Tests Asset-Protecting RFID System

The North Carolina university has deployed an RFID-based system that can be set to provide police with automatic alerts and video whenever a high-value item is removed without authorization.

By Claire Swedberg

Jan. 8, 2007—Wake Forest University, in Winston-Salem, N.C., is entering a second phase in piloting an RFID-based system designed to help the school to track and protect assets.

"We view ourselves as part of the community of Winston-Salem," says Phil May, Wake Forest's assistant director of infrastructure. "People live here, and we want to provide an environment that will better their lifestyle, including making this a safe place to live and keep your assets." He says the university began looking at RFID technology as a way to protect assets, then chose its James R. Scales Fine Arts Center as the site for its initial pilot because high-value assets are located there, and because thefts have been a problem. Prior to using this system, the school deployed cameras that could provide police with videotape for review whenever an asset was discovered missing. Sometimes, that meant reviewing weeks' worth of tape.

Two years ago, Wake Forest installed active RFID readers at the 12 egress points of the building, and began attaching RFID tags to 20 university-owned items, including video projectors and music keyboards. May is unwilling to name the manufacturers, or indicate the tags and readers' operating frequencies, since he says the school is still reviewing the best hardware for the system and is considering both active and passive RFID.

May says this phase of its implementation provided only raw location data. "It was quickly obvious that a solution was needed that would allow the automated correlation and reaction to that data," he says.

Three months ago, Wake Forest took the project to the next step by launching the SyncSeer asset-management solution, a modular software package from Tyco Electronics, developed in conjunction with Versatile Systems for collecting tag data read by RFID interrogators and acting on that information. The system will allow Wake Forest to integrate business rules to allow RFID data to be used in a variety of ways. For example, Mays says, the university could write instructions about whether a tagged asset can be moved, who can move it and even the times it can be moved. In the event that these rules are violated, the SyncSeer system can automatically alert the university, the police or some other party, depending on the business rules.

Most of the 12 readers are deployed at doorways, May says, though the university is also testing a broader coverage to allow the ability to track an item's active tags wherever they are located within the building, and whether a tag is being tampered with. "SyncSeer will send out an alert if the asset doesn't 'check in' in a predefined amount of time," he says.

"The unique advantage of SyncSeer is that it is agnostic," says Bob Joyce, Versatile's president, explaining that it works directly he says, with whatever technology the university is using, without the need for intervening middleware. This includes active and passive RFID, as well as wireless systems.

"SyncSeer is software-driven," says W. Bernard DeGree, III, Tyco Electronics' director of global business

development. "It can collect data from various disparate systems and push that data," to provide both real-time event processing options and alert notifications.

"Wake Forest is a microcosm—a full-service organization with high-end and low-end assets—which puts it in a unique position," he says. Because some items require more active tracking than others, Wake Forest needed the flexibility of the SyncSeer software solution to operate the school's existing technology. For example, some assets require active RFID tags beaconing constantly to RFID readers in the building, notifying the university if the readers no longer detect a tag's signal. Other, lower-value items could be tagged with passive RFID to transmit only when they pass near a reader. May says the university would like to research tying the RFID system to its existing Wi-Fi wireless network, as well as its video surveillance system. WFU has already deployed a Wi-Fi infrastructure and a few IP-based cameras. May foresees the university continuing to research using RFID for location tracking, and Wi-Fi for other security and communication functions such as video transmission and storage. These functions would be tied into the RFID system via SyncSeer.

RELATED_ARTICLES With its current system, May says, the university is now able to send an alert to police if an asset is moved in violation of the rules, along with 30 seconds of video footage from before and after the violation occurred. The school intends to test the use of personal RFID tags or, perhaps, RFID-enabled ID cards for students or staff. Each person's unique tag ID number would be linked to certain assets he or she would be permitted to move. Wake Forest supplies Versatile with those rules, along with an asset's serial number, a description and a tag ID number, as well as details about the asset's owner. Versatile then inputs the data and business rules into the system.

"I can see growth in the technology we are deploying," says May, "but maintaining the same growth in personnel needed to monitor that technology can be a challenge. That is why SyncSeer becomes so valuable." The software will monitor the system, he explains, eliminating the need for additional personnel. May says the school does not have specific dates set for full deployment throughout the campus, though that is his stated long-term goal.