

Universities spending millions on access

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Securing our education campuses, whether they are those belonging to a university or a school has become an essential component in the education framework. No longer are these institutions secured merely against theft and vandalism. There is also the issue of abuse of academic literature and knowledge, illegal attendance of classes or residence facilities, and above all, there is the growing need to protect a student's own personal safety in a world where violence and radicalism are realities.

Hi-Tech Security Solutions examined a recent access control refurbishment that was done (and is still a project in progress), on one of South Africa's well-known university campuses: the University of Cape Town (UCT). We spoke to the project manager, the integrator and the supplier, to establish how this institution is merging new solutions with existing systems – all without disrupting its campus community of 35 000 staff, students and service providers.

The University of Cape Town project

The task has been a delicate one, says distributor John Powell of Cape-based Powell Tronics. Powell and his team are the people behind the integration of the university's access control system. He has many years' experience in high-end integrated access and security solutions and the team has been responsible for designing the interface between the Impro system and UCT's identity vault or identity and access management system.

“Not only were we dealing with multiple buildings, approximately 90, we were dealing with multiple access points and multiple requirements from each student. The challenges were huge.”

Professor Andy Duncan, a retired professor of the UCT, is the project manager overseeing the university's R6 million access control upgrade. He has worked on the project from inception. Duncan made it clear from the beginning that the most important aspect of the job was to design a system that would enable a seamless transition from the existing system to the new one; one that would allow none of the university's 35 000 community to be affected during the technology changeover. Campus life should carry on without disturbance.

For Powell Tronics, integrating an access control system into an older system meant hours of preparation and analysis by the project management team before the installation could come near to fruition. “While the traditional system may have worked well, the university's access control system had outdated systems software and the integration was originally written by an ex staff member and its hardware was outdated and difficult to get hold of,” says Powell.

The solution

After an extensive tendering process and evaluation of various hardware solutions, UCT turned to Impro Technologies to provide the solution to their access control requirements. “In large institutions, such as a university campus, integrating older systems into new systems becomes tricky, because there is so much more equipment to take into account,” explains Duncan. “Keeping systems up and running while introducing new systems, was a challenge.” The 700 doors that UCT is reliant upon for access control in its numerous buildings have been run by traditional RS485 protocol magstripe readers. Conversion to the full IP-based solution had to be done by installing the new access control hardware, beginning at the building furthest away from the central system, in other words, the building at the end of the 485 line.

“The only logical way to keep the access control system running throughout the university as we progressed was by looking at the system as if it were a daisy chain,” explains Powell.

“We started from the outside working our way in. If we had picked random buildings, for example a building in the middle of the chain, we would have lost half the buildings on the one side of the 485 line and totally disrupted the campus’s access control,” explains Powell who stresses that the decision as to what would be the best order of conversion was agreed upon only after many strategy workshops had been held.

UCT’s identity and access management system uses Novell’s eDirectory technology. “The Novell identity vault receives data from four databases,” says Duncan. “These include PeopleSoft (which holds student details), SAP HR (for staff information), the university’s third-party system (for external service providers) and RMS (the residence management system). “The challenge,” stresses Powell, “was to get all this information into one new access control system.

“What we did was to develop a system which integrates all the higher level information from the primary software sources, collate that information and then allow it to populate the new access control system. The system we have installed allows for very limited manual entry access rights. Our automation makes all access control on the campus operate in real-time. It is live. If a person is blacklisted or barred from a building, our system will pick it up immediately and update the access control system at once, with absolutely no manual input required whatsoever. The system also monitors students, staff and third parties in the same manner.”

Powell notes that a major part of the success of the access control renewal project had to do with the professional project management that was conducted by Duncan. A further bonus – and a prime reason for Impro being chosen as the systems provider – was that Impro Technologies was also able to integrate its solution with Bosch technology – a technology that the university uses (it also runs an IP camera solution with Bosch).

One card fits all

“A challenge for those of us tackling the UCT access revamp project was to ensure a new access card also worked with the magstripe technology used in the old access control system, as well as for photocopying and printing, together with barcode technology for the library. The new Proximity Card access control system uses proximity technology and has an embedded radio-frequency identification (RFID) chip. This means that the user simply has to hold the card up close to the RFID reader rather than slide it through. The proximity card also carries a magstripe and barcode. The reader can pick up the RFID chip even if kept in its plastic sleeve attached to a lanyard. And the best thing is the card does not need to face any specific way to enable access.

Powell explains that some institutions have gone one step further to use the card to record more detailed information about the cardholder. “Essentially a contactless smartcard can record an individual’s fingerprint, plus it can record other information about that person which the system can read and access at any given time.”

An evolving project

The UCT access integration took five months to complete, but the project is still very much an ongoing one. The new system still has to be installed in many of the buildings at UCT.

“We are also working on different aspects of our overall requirements, for instance, we are addressing the issue of access to mealtimes in residences. What do we do if a student from one residence needs to eat in another residence: how do we design the access control system to cope with these requests?” asks Duncan.

“In most cases,” says Powell, “the access control system is the primary product upon which all the institution’s alarms and other systems come together via a graphic interface. This interface merges the systems together, eliminating the old methodology where each technology system had its own interface. Now, if there is a fire alarm, our technology is able to set off an alarm on a screen in a remote control room and work out exactly who is in the room so that the operator can take appropriate action.”

Integrating UCT’s parking access technology and the fire detection and alarm systems are projects to be tackled further down the line. The ultimate aim is to have the entire campus integrated. And this methodology is being applied to a number of universities in the country.

Powell says he and his team have to date tackled the access control upgrades for several university campuses, namely Stellenbosch, UWC, UCT and UNISA, and have worked together with several professional contracting companies. They have also worked with a number of schools.

“In the case of UCT, a management team consisting of UCT representatives, Powell Tronics and Firespec, headed up by Professor Duncan meet every fortnight and go through different issues relating to the institutions, security models. We will debate issues such as that of disabled people and how we go about ensuring that they can reach the card readers,” concludes Powell.

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