





"We have been consciously moving towards web services for a few years now."  
**Sofiane Benna, head of operations - network and telecom at the University of Sharjah's Computer Centre**

# A wireless future

The University of Sharjah has implemented a campus-wide wireless network that enables better services to students and faculty now and acts as a backbone for building additional services in the future.

Adding onto an existing, functional network is never easy. And when such additions influence the working and living habits of thousands of people, it becomes crucial to make the entire implementation a success.

The University of Sharjah's (UoS) Computer Centre team was well aware of this. The Centre handles the IT infrastructure of the sprawling university which prides itself on providing the best in educational facilities and academic courses to thousands of students. And the campus houses all of them along with faculty members in several buildings. The team at the Computer Centre knows that any new technology addition to the university has to meet with stringent requirements and pass many tests.

"We are always looking for new technologies that can be used in the university for the benefit of students and faculty. We have a reliable network and when we do add onto that we are careful

in selecting only those elements which will benefit us further and which will integrate well with the present working environment of everybody on campus," says Dr Mostepha Belmihoub, director of the Computer Centre, UoS.

## Going wireless

All of that was borne in mind when the Computer Centre began to work on the idea of implementing a wireless network for the entire campus.

The university infrastructure has been built on a Gigabit Ethernet backbone. This covers 40 buildings which include 20,000 data and voice points. UoS has a large datacentre, which houses the entire network,

security elements as well as consolidated server and storage architecture. A 27 member IT team including engineers and support staff maintain network functions at the university.

"We have been consciously moving

Following an indepth evaluation process, the UoS picked Trapeze Networks as the vendor of choice.

towards web services for a few years now. Almost all course information is available on a web services platform and is accessible through the Internet to students and faculty. Data access points have been provided for student devices in the classrooms, at the labs and even in the dormitories. We wanted to



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go a step further and provide wireless and mobility to the students," says Sofiane Benna, head of operations – network and telecom at the university's Computer Centre.

A wireless network would enable students and faculty to access course information anywhere and anytime on the campus. It would provide additional mobility to

We are highly conscious of securing our network and the Trapeze solution fit those needs to the tee," says Belmihoub. The implementation was carried out by systems integrator EMW.

#### **Towards wireless**

The wireless solution included MP-372 Mobility Point access points and MX-400 Mobility Exchanges along with RingMaster Planning and RingMaster Management

The authentication process assures that only users with the right credentials can access the university's network.

students and improve communication facilities with the faculty.

After due diligence, the Computer Centre asked several vendors to demonstrate their solutions. Then an open tender was issued which brought in responses from major brands. Following an indepth evaluation process, the UoS picked Trapeze Networks as the vendor of choice.

"Trapeze Networks proved the right fit for us in terms of the features, the integration with existing environment and cost.

tool. The network is based on the 802.11g standard - with support for others - and provides 54 Mbits/s throughput to all mobile devices.

"We chose to go with a thin wireless solution. Trapeze gave us the ability for advanced radio frequency planning and this was essential for us across buildings. Security was a major criteria in putting the wireless network in place. Trapeze gave us reliable security and authentication processes that work along with legacy systems," says Benna.

The authentication process assures that only users with the right credentials can access the university's network. A universal ID system with Active Directory centralises management of users over wired and wireless networks. Encryption of traffic between mobile devices and servers has been put in place in order to ensure information safety. Systems have been put in place to detect rogue access points across the campus.

"A pilot was implemented as the first stage. This was essential for us to know what problems we might face and to smooth them out early on in order to avoid future glitches. Additionally, we put in place a solid security infrastructure that would form a reliable base for the wireless network," comments Belmihoub.

The implementation was done in three different phases. The university preferred this approach since it gave them the ability to build up one step at a time.

"Phase one, which occurred in 2006, involved implementation of the wireless network in all of the major administrative buildings as well as the central library and the cafeteria. The second phase extended the wireless network to the rest of the buildings on campus. The third phase involved covering outdoor areas with the network



and was completed by September 2006,” says UoS’s Benna.

Access points were deployed across the campus keeping in mind the general aesthetics of the place. All of them were ceiling mounted and appear like fire sensors.

According to Benna, both initial phases were completed in time and with very little trouble for the IT department and users.

#### One at a time

“Our major challenges involved providing the right coverage and ensuring high levels of security. We also needed to provide for mobile connectivity across devices, including smart phones. Nevertheless, it was a straight forward process across implementation and integration with legacy systems,” says Benna.

With access points appeared the need for Power over Ethernet (PoE) and a network that supports that. A few switch upgrades on existing Nortel equipment was all that was needed to enable the shift.

“Ring Master software that is provided by Trapeze helps us to configure and monitor usage of the wireless infrastructure. It can also be used to find breaches, detect and shut down access points. Eventually we plan to include building plans in the program.

This will make our job easier when when we need to expand to cover new buildings and also provide a unified management console,” says Belmihoub.

The benefits that have come out of the wireless network are multiple. Students and faculty alike can now access the course information and other educational facilities on the network from wherever they are. They can also use multiple devices – like laptops and PDAs – to access the network. All of this is secured by the unified user management system.

“The solution has met our objective and fulfilled our needs. We are now able to provide several applications over the wireless network. The university is already using VoIP technology. Wireless gives us the ability to look at VoWLAN technology in the near future,” says Benna.

“We already have a good Learning Management System and integrated Web services. We can also build other

applications that increase interaction between students and faculty. This would include SMS, notification systems, push e-mail. These are all on the drawing board for the future.”

“We have not really calculated a cost based ROI for the implementation. We have indeed studied the impact of the wireless network on people in the campus and all we have received is positive feedback,” adds UoS’s Belmihoub.

With the wireless network in place, the University of Sharjah can look forward to a whole range of applications and services that were not possible before. With their strong move to Web services, these will provide additional benefits to students and faculty alike.

In other words, thanks to the diligent work of the Computer Centre, the university is achieving its primary goal – providing students with a world-class environment in which to pursue a wide range of academic studies.