MOBILE LIFE

NGEE ANN POLYTECHNIC ADOPTS AN END-TO-END CISCO SOLUTION WITH WIRELESS CONNECTIVITY TO ENABLE ITS STUDENTS TO LEARN, WORK AND PLAY ANYTIME, ANYWHERE ON THE CAMPUS.

Ngee Ann Polytechnic (NP) is one of Singapore's leading institutions of higher learning. For over four decades, the polytechnic has nurtured and developed professionals and entrepreneurs across a wide range of industries. Inaugurated in 1963 as a college, the polytechnic has now evolved to include six academic schools and an Early Childhood Education programme, offering a total of 28 full-time diploma courses. Currently, there are about 14,000 students.

At NP, technology is used strategically to e-enable, enhance and enrich the learning and teaching experience. Ngee Ann started gearing up to become an e-campus in 1995 and began its wireless network implementation as early as 2000.

THE CHALLENGE

NP'S MOBILE E-LEARNING INITIATIVE IS A REFLECTION OF ITS COMMITMENT TO CREATE A HOLISTIC LEARNING ENVIRONMENT THAT PREPARES ITS STUDENTS TO DO THEIR PART IN THE KNOWLEDGE ECONOMY.

NP aims to offer its students a holistic learning experience through the Ngee Ann Learning Model (NLM), which emphasises a balanced and broad-based education. To ensure that its courses and students are in tune with current market developments, the polytechnic maintains close industry links and devotes expertise and resources to assist the development of local enterprises.

The polytechnic believes in creating an environment that makes it easy and fun for students to learn together, work together and play together. Elaborating on this, Mr Ch'ng Beng Hin, the Deputy Director, Teaching & Learning Centre, explained, "One of our key priorities is to create a total learning experience and a sense of belonging among our students. We want them to function as members of a community who work and play together. As many of our courses are very hands-on and require our students to work in groups, we want to give them the ability to hold their discussions, do research, create presentations and rehearse from wherever they may be.
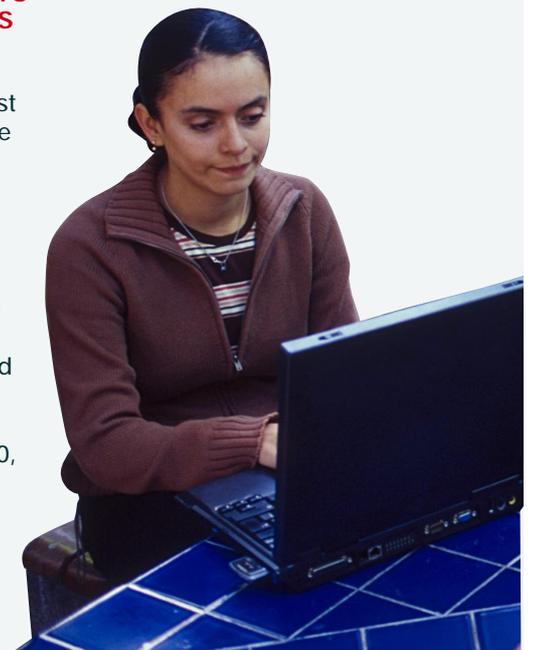
"To achieve this, we need to give them anytime, anywhere wireless connectivity. We don't want to restrict their learning and playing areas to just classrooms and other locations where there are wired points. We want to help them participate in the mobile lifestyle that is pervasive today."

A structured and strategic approach was therefore adopted to make this a reality. NP's three-phase masterplan began in July 1999 when it introduced the Notebook Ownership Scheme which enabled each student to own their own notebook computer. In 2000, NP began the process of installing wireless access points around the campus, and followed it up with the launch of its e-learning platform, Blackboard, in 2002.

Mr Ch'ng added, "NP's Mobile e-Learning (MeL) initiative is aimed at producing a generation of students who are confident and comfortable working in a mobile economy. It will enable our students to become more IT savvy and develop greater mastery in self-learning, the two critical life-skills for future professionals.

"The use of notebook computers has become an integral part of the learning experience in NP. Our goal is to ensure that all our students and academic staff will have individual notebook computers by June 2005."

THE SOLUTION

TO PROVIDE THE BEST POSSIBLE COVERAGE COST-EFFECTIVELY, NP COUNTS ON CISCO AIRONET ACCESS POINTS FOR TRI-BAND COVERAGE WITH SUPPORT FOR IEEE 802.11a/b/g.

Ngee Ann's infrastructure is geared at supporting a mobile community. Each student is issued with a wireless card to connect to the campus-wide network in over 200 classrooms, the Lifestyle Library, canteens, the swimming pool and many other common areas. NP has also equipped all sheltered areas with tables and power-points to support its 15,000-strong user base.

"We wanted our staff and students to have the best and most reliable equipment, coupled with excellent support. The Cisco wireless solution was attractive to us because it could help us integrate technology into the curriculum at a competitive price," said Mr Ch'ng.

"Cisco has been a close partner and supporter of NP's MeL. Through open tender biddings, Cisco has supplied the polytechnic with Cisco Aironet Access Points and Cisco Aironet Wireless LAN Client Adapters – or Network Interface Cards (NICs) – over the past few years."

Popular locations around NP's 35.4 hectare campus are covered by almost 1,000 units of Cisco Aironet 350 Access Points and Cisco Aironet 1200 Access Points. The Cisco Aironet 350 Access Points provide IEEE 802.11b coverage while the Cisco Aironet 1200 Access Points are configured for tri-mode 802.11a/b/g coverage. In addition, more than 6,000 Cisco Wireless NICs are in circulation among the student and academic staff population.

Today, NP runs an end-to-end Cisco network, comprising Cisco Catalyst 6500 Series Switches at the core, a combination of Cisco Catalyst 6500 Series Switches and Cisco Catalyst 5500 Series Switches for distribution, and Cisco Catalyst 3500 Series Switches and Cisco Catalyst 2900 Series Switches at the edge of the network.

NP PROVIDES STAFF AND STUDENTS WITH ANYTIME, ANYWHERE CONNECTIVITY BY INVESTING IN INDUSTRY-LEADING WIRELESS SOLUTIONS FROM CISCO.

Mr Ch'ng said, "Cisco has been the de facto standard for our network since 1998 because of the reliability of its products and the speed of deployment. They were also very supportive when we were planning to introduce a wireless campus and allowed us to test the equipment extensively."

THE RESULTS

NP HAS ACHIEVED ITS OBJECTIVE OF CREATING A CAMPUS ENVIRONMENT THAT PROMOTES THE MOBILE LIFESTYLE AND ENCOURAGES A SENSE OF COMMUNITY.

"The wireless campus is an integral part of our infrastructure that has enabled our students to realise a truly mobile learning lifestyle. The manifestation of this mobile learning lifestyle is so self-evident that it has become a trademark to any visitor to NP during term time," said Mr Yam Weng Wah, Director of the Teaching & Learning Centre.

He added, "Producing better students for the future is our main goal. And educationally, the mobile learning style strengthens our students' position for life-long independent learning, and their greater IT-savvy-ness will better equip them for the new economy. In addition, savings enjoyed by NP as a result of the Cisco wireless network can be reassigned to help students buy software and NICs."

NP'S MOBILE E-LEARNING INITIATIVE TAKES OFF WITH THE HELP OF THE CISCO WIRELESS SOLUTION.

The Cisco wireless network has enabled NP's MeL initiative to take off. Said Mr Ch'ng, "With the support of vendors such as Cisco, we have achieved a significant paradigm shift in teaching techniques. This has opened the way for greater student collaborations, with more student-to-tutor communications, as well as more independent research.

"It is very satisfying to see students working together everywhere. Students can study, participate in online discussions, access online tutorials and study modules, submit assignments and conduct research anytime, anywhere, 24 by 7. We have given them the freedom to learn and work from wherever they are most comfortable. Our lecturers also enjoy greater flexibility. Teaching and learning no longer need to be restricted to classrooms and laboratories.

"Today, more than 70 per cent of NP course modules have an online presence and our e-learning platform averages 30 million page-hits per month during term time. Students can access their coursework on and off campus. Electronic experiments could be conducted from their mobile notebook computers instead of restricting to time-tabled laboratory. Tutors can plan their teaching and learning activities without depending on classroom and laboratory availability. None of this would have been possible without the Cisco wireless network."

Moving forward, NP is looking into introducing ways to take full advantage of the wireless infrastructure. "The Cisco wireless network is definitely changing the way we do things at NP. It provides us with alternative means of teaching and learning. Our students are required to take courses outside their immediate fields of study under our inter-disciplinary requirements. Many of these – like computer programming and even poetry reading – can now be conducted outside traditional classrooms because of the wireless network," said Mr Ch'ng.

THE PARTNERSHIP

NP PRAISES CISCO'S COMMITMENT AND WILLINGNESS TO SHARE EXPERTISE AND EXPERIENCE WITH ITS ENGINEERS.

NP has enjoyed working closely with Cisco on the implementation of the wireless solution, as well as the end-to-end Cisco network.

"The NP wireless campus started back in 2000. During its early days, Cisco engineers were on-hand to help us optimise our wireless network for the best coverage. Furthermore, Cisco has always been quick to share with us their expertise and give us access to their latest products. Their willingness to collaborate and work with us has been a key factor in the success of our wireless campus," said Mr John Choo, Director, Computer Centre.

"With almost 1,000 Cisco Aironet Access Points supporting 15,000 wireless users on our campus, Cisco has once again proven to be reliable and has not failed us in our performance expectations."

NP is very pleased with the on-the-ground working relationship, citing Cisco's professionalism and commitment to effectively transfer their knowledge to NP engineers to get the most out of their network.

NP AND CISCO ENJOY CLOSE WORKING RELATIONSHIP.

CISCO SYSTEMS