



›THIS IS THE WAY

TO TAKE YOUR OFFICE ANYWHERE

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Solution Brief

Nortel Campus Mobile Worker

Helping you stay ahead of the competition through improved customer responsiveness and staff productivity

Do you have a workforce or constituents who are constantly on the move within a building, campus or within a city? Are you struggling with these users not being accessible enough to customers and peers? Is there a duplication of work and repeated mistakes because your users don't have access to expertise and critical applications when needed?

Staying ahead of the competition is about making faster, more accurate decisions and providing exceptional customer service. In many enterprises, your employees are away from their desks 30 to 60 percent of the time. They are roaming the campus facility or are "corridor warriors" dashing through the corridors from one patient or one meeting to the next. For these users, it is difficult for them to remain accessible and have access to the tools they need when they are on the move.

Nortel Campus Mobility Solutions solve these challenges. Our solutions provide:

- › The access technologies to connect to the network — cellular, WLAN, Mesh/Wi-Max. This eliminates duplication of work as employees access the applications they need, wherever they are.

- › The power of SIP. SIP-based multimedia applications enable access to others in real-time — such as presence, instant messaging, video calling, real-time call disposition, conferencing, file sharing and white-boarding. Real-time access to expertise enables faster and more accurate decisions and people to be accessible to those they serve, whether they be corporate customers, government administrators, medical doctors, patients, students, teachers or researchers.
- › Support for a variety of handheld devices (BlackBerry, Dell, HP) giving employees the flexibility in how they access network resources and remain accessible.

"Nortel's Wireless Mesh Network solution enables journalists from around the world to report on Space Shuttle Discovery's historic 'Return to Flight' mission. This innovative new technology is something that has been needed at the press site, and we're very excited to be able to offer this to media from around the world thanks to Nortel's support."

— Joseph LaMarca, Jr., communications director for The Boeing* Company in Florida and a member of the Joint Industry Press Center team

Nortel's Campus Mobility Solution is made up the following components:

- › **Wireless Solutions** (Wireless Mesh Network, WLAN, VoWLAN, Digital Mobility)
- › **Multimedia Applications** (SIP-based Multimedia Communication Server [MCS] 5100, CallPilot Unified Messaging)
- › **Security Solutions** (VPN Gateways and Endpoint Security with the Nortel Secure Network Access solution)
- › **Global Services for Enterprise Mobility Portfolio** (Lifecycle Services, Hosted/Managed Services)



Let's look at some customer deployments to see this solution in action.

Taipei's Mobile City (M-City): Kick-starting economic development

Many municipalities are looking at ways to differentiate themselves to attract new investment, increase migration to the municipality as well as retain the businesses and residents that it currently has. While many have looked at large-scale fiber deployments to bring broadband services to their communities, wireless technology appears to be the better choice — primarily because it costs less due to no requirement for a large capital outlay for laying fiber, and because wireless technology gives users a level of freedom that wired technologies cannot — to be connected wherever their business or personal needs take them. The benefits of these wireless deployments are reduced crime, improved productivity and enhanced city services.

Situation

The City of Taipei was looking for a solution to provide LAN broadband access and new Internet services in Mass Rapid Transportation stations, selected commercial buildings and other key locations across the city, i.e., creating a Mobile City.

Solution

Wireless Solution: Wireless Mesh Network

Nortel's Wireless Mesh Network was deployed for this project. By the end of 2005, the M-City project expects to have over 10,000 access points installed across 90 percent of its 272 square kilometers.

- › Unlike traditional WLAN solutions, Mesh doesn't require extensive cabling to be laid, providing costs savings and deployment time savings of 30 to 50 percent.
- › The wireless access points have built-in intelligence for managing the



"Our selection of Nortel was based on its unparalleled experience in deploying numerous wireless networks worldwide. Nortel's Wireless Mesh Network solution enables delivery of secure wireless broadband services that can provide a cost-effective method for extending wireless LAN coverage more broadly into business and end-user markets."

— C.S. Lin, Chairman of Qware

network, keeping information flowing if any one point is overloaded or temporarily out of service.

- › The biggest engineering challenge for covering such a large area was to identify where each access point needed to be placed. **MeshPlanner** is a software tool used to allow network designers to provide superior service coverage while reducing planning and implementation costs.

Security Solutions:

- › Wireless Mesh provides data encryption between the end user and access point.
- › The mobile side supports several encryption services including WPA, WEP and AES.

Multimedia Applications: Multimedia Communication Server 5100/5200

Nortel was also able to demonstrate a wireless telemedicine application at the Taipei City Hospital using our Multimedia Communication Server (MCS) 5100/5200 platform. This application can help provide quicker access to medical resources for remote Taiwan communities and outlying islands. The MCS 5100/5200 is a SIP-based multimedia communications solution that provides advanced multimedia communications such as video calling, instant messaging, conferencing and much more.

- › The surgeon was able to make a real-time wireless Internet connection from a Taipei city subway station to the county hospital on the island of Lienkiang in the Taiwan Strait.
- › The surgeon used a wireless laptop computer to remotely connect to the Nortel MCS 5200 at the hospital to assess the progress of a patient who had been treated earlier in Taipei. The surgeon was able to remotely examine the patient's X-rays, as well as speak with the patient and the attending Lienkiang hospital physician via the Internet.
- › The doctor also has the option of using the MCS 5100 Release 3.5 wireless client for RIM handhelds which brings SIP-based multimedia communications including presence, instant messaging and click-to-call — together with the traditional RIM productivity services organizer and e-mail applications.



**BlackBerry with
MCS Client**



**laptop with
MCS Client**

Award-winning Coppin State University: Creating a competitive advantage through technology

Situation

Coppin State University, Winner of the 2005 Educause Award for Excellence in Networking, is transforming its learning and administrative environment with a Nortel converged IP network and a full-scale deployment of Nortel Campus Mobility Solutions. Coppin State's vision was to make technology a strategic differentiator, which would enable them to effectively compete for students, faculty and researchers, fostering new teaching innovation, enhanced productivity, streamlined administration and reduced costs.

Solution

Wireless Solution: Wireless LAN and VoWLAN

- › Nortel's WLAN solution was deployed to support both indoor and outdoor mobile access. Students, faculty and administrators can access resources from anywhere on campus over the wired and wireless infrastructure.
- › Coppin State created "smart classrooms" all across the campus where all of the equipment (AV projectors, VHS/DVD equipment, desktop PCs, wireless microphones, etc.) is centrally monitored and managed over the converged IP network. If any equipment malfunctions occur, an alert is automatically generated notifying the IT staff.
- › The VoWLAN infrastructure enables faculty, campus security and administrative staff to carry 802.11 wireless phones enabling them to respond instantly to campus issues and emergencies.



"I trust Nortel. They didn't try to shoehorn a solution. They listened, understood and provided the solution we needed. We now have a learning infrastructure that is flexible, secure and always-on."

- Dr. Ahmed El-Haggan, VP of IT Service and CIO of Coppin State University

Multimedia Applications:

Unified Messaging

- › Unified messaging was provided to all faculty and staff. The consolidation of all e-mail, voice mail and fax communications resulted in significant improvements in user satisfaction and productivity. Faculty can respond to student requests more promptly and efficiently.

Security Solutions:

- Enhanced network security and data center infrastructure were deployed.
- › Advanced Nortel Switched Firewalls were deployed to protect data center applications and infrastructure. Switched Firewalls protect, support and prioritize critical real-time applications (VoIP, SIP, etc.) while maintaining user quality of experience through low-latency, high-performance security.
- › Application switches load balance Web servers and provide intelligent traffic management.

- › SSL VPN provides clientless secure remote access to all campus resources. Students have access to online course registration solutions, online counseling, financial aid, grades, etc. and faculty can work effectively off campus with full access to the complete ERP system. A secure connection to the Baltimore City Police is also enabled by the SSL VPN solution which allows the Coppin State public safety department to access required police databases expediting background checks and incidence reporting.
- › Solutions for end-user device scanning, intrusion detection and policy management ensure that the campus network is protected from unauthorized access, security threats and attacks.



W-Hotel: Improving customer responsiveness with VoWLAN

In the hospitality industry, mobility solutions are a powerful tool for creating competitive differentiation and improved business management, enabling guests and staff with ubiquitous and timely access to key information and communications tools.

Situation

W Seoul-Walkerhill is Asia's first W Hotel and they were looking for a solution that would support delivery of the highest quality of service to guests and enhance employee productivity and responsiveness. The W Seoul-Walkerhill has a commitment to rapid and responsive guest assistance — illustrated by the hotel's innovative Whatever/Whenever service.

Solution

Wireless Services: VoWLAN

The W chose to implement Nortel's industry-leading voice over wireless LAN (VoWLAN) IP Telephony solution, comprising handsets, management system, third-party application gateway and softphone clients for PDAs. The Nortel VoWLAN solution gives the highly mobile hotel personnel ubiquitous and timely access to key information and communication tools and allows them to roam and remain in touch no matter where they are in the hotel.

- › Solution includes 60 WLAN Handsets 2211, Nortel WLAN IP Telephony Manager 2245, Nortel Application Gateway 2246 and the Mobile Voice Client (MVC) 2050 Softphone for Pocket PC-based PDAs.
- › The VoWLAN solution seamlessly integrated with the existing IP Telephony system — the Nortel Communication Server 1000 providing feature transparency with fixed phones.



“This is the first W Hotel in Asia and it represents a new pinnacle in Starwood’s tradition of innovation and excellence. It is only fitting that management and staff be provided with the latest in wireless technology to support them in the prompt and efficient delivery of the very best quality of service to our guests, as well as enhance their availability to co-workers and suppliers.”

— Martin Jones, General Manager, W Seoul-Walkerhill

- › Nortel WLAN Handsets 2211, the smallest and lightest IP telephones available, provide robust coverage, clear voice quality, full breadth of Nortel telephony features and walkie-talkie-style push-to-talk functionality for two-way communication.
- › Nortel WLAN IP Telephony Manager 2245 is a network appliance that works with access points and access ports to maintain connectivity with the call server and ensure voice quality by providing quality of service (QoS) on the WLAN.
- › Nortel Application Gateway 2246 enables standards-based, third-party software applications to be integrated with wireless handsets through an open application interface. It gives users the ability to send and receive text messages and to interact with third-party applications, including such applications as the FCS Connect system used in the hotel's Whatever/Whenever Guest Centre.
- › Nortel Mobile Voice Client (MVC) 2050 Softphone for Pocket PC-based PDAs, still in the testing stage at the W Seoul-Walkerhill, will extend 802.11b WLAN IP Telephony services to mobile workers using Windows Mobile 2003 Pocket PC PDAs from various manufacturers. This will provide secure voice and data communications and support up to 500 telephony features.



Mobility Solution components

Wireless Solutions

Wireless Mesh Network

The Nortel Wireless Mesh Network solution uses a peer-to-peer infrastructure to backhaul data wirelessly to a wired network. It provides WLAN coverage of large open areas, both indoor and outdoor, and is ideal for situations where cabling for the LAN network is not in place or too costly to deploy or in some cases impossible to deploy — for example, in historic buildings. With Wireless Mesh Network and its wireless backhaul capability, enterprises can reduce capital costs associated with installation and reduce the time required for deployment (ideal for emergency response situations). Nortel also recently announced plans to offer Wi-MAX products based on the IEEE 802.16-2004 (fixed) and 802.16e (mobile) standards.

WLAN 2300

Nortel's WLAN 2300 solution is an in-building WLAN solution optimized for running high-quality voice and multimedia applications, offers smooth scaling of capacity and coverage across the entire campus, seamlessly integrates with existing networks and security, and provides strong security, performance and service resiliency.

VoWLAN

Nortel's Voice over WLAN portfolio provides all the features and functionality of an IP desk phone and each handset has an Open Application Interface (OAI) that allows them to function as two-way messaging devices, allowing integration with other enterprise systems to provide mobile workers with access to critical information. VoWLAN Soft Clients are also available for devices such as the RIM BlackBerry, Dell Axim, HPiPAQ and Toshiba PDAs.

Digital Mobility

Digital Mobility is an affordable wireless voice solution offered on our Norstar and BCM platforms. It is based on DECT technology and can scale from 4 to 64 users, cover up to one million square feet and is run on your private network (no airtime charges).

Voice Quality Management

Proactive Voice Quality Management (PVQM) is comprised of a network management tool suite by Nortel and partner NetIQ. PVQM measures call quality at the phone and in real-time. When pre-set quality metrics are not reached, PVQM alerts the appropriate operation during the call, with detailed troubleshooting information.

Multimedia Applications

Multimedia Communication System (5100/5200)

Nortel's Multimedia Communication Server 5100 (or the carrier version 5200) provides powerful communications features — business-grade IP Telephony, video calling, instant messaging, call screening, real-time call disposition, conferencing, file sharing and white-boarding. A client is available for RIM handhelds, which brings SIP-based multimedia communications — including presence, instant messaging and click-to-call — together with the traditional RIM productivity services organizer and e-mail applications. Nortel has gone one step further and created a plug-in for our Multimedia Client in Outlook 2003.

CallPilot Unified Messaging

Nortel's CallPilot Unified Messaging application combines voice mail, fax and e-mail into a single location that can be accessed from anywhere, whether over the Internet or by telephone — improving user productivity through a single messaging access point. CallPilot will give you the ability to bring disparate messaging together and take back the countless hours that are lost during a typical business day.

— continued



Security Solutions

Nortel's VPN Gateway 3050/3070 ensures strong security when employees connect to the network wirelessly as an alternative to 802.11i and 802.1x security in the Mesh or WLAN 2300. The security capabilities in the Mesh and WLAN 2300 preclude the need for a VPN unless the customer has some other mandate or desire for it.

Global Services for Enterprise Mobility Portfolio

Nortel offers our Campus Mobility Solutions in a hosted or managed service to provide enterprises with greater choice and flexibility. Nortel also offers a complete set of services that address your needs throughout the entire life of your network – including planning and design, installation, integration, maintenance and optimization support services.



Nortel is a recognized leader in delivering communications capabilities that enhance the human experience, ignite and power global commerce, and secure and protect the world's most critical information. Serving both service provider and enterprise customers, Nortel delivers innovative technology solutions encompassing end-to-end broadband, Voice over IP, multimedia services and applications, and wireless broadband designed to help people solve the world's greatest challenges. Nortel does business in more than 150 countries. For more information, visit Nortel on the Web at www.nortel.com.

For more information, contact your Nortel representative, or call 1-800-4 NORTEL or 1-800-466-7835 from anywhere in North America.

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