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Case Study

Coppin State University

A Nortel converged IP network solution helps an institution of higher education live up to its motto of **"Nurturing Potential... Transforming Lives."**

Customer: Coppin State University

Country: United States

Industry: Education

Challenge: To transform its teaching, research and administrative environment through the strategic deployment of IT. The plan called for the deployment of a new telephony platform including traditional and IP Telephony. The data network needed to be upgraded to provide greater bandwidth, reliability, redundancy and quality-of-service features. Solutions for wireless mobility and for physical and cyber security were required.

Solution: A converged IP infrastructure supporting all voice, data and video communications over a common IP Gigabit backbone. The solution includes the Nortel Ethernet Routing Switches (formerly known as Passport*), providing scalability and advanced IP routing; security solutions encompassing the Nortel Threat Protection System, Nortel Switched Firewalls (formerly known as Alteon*), Nortel VPN Gateway and Nortel Application Switches (formerly known as Alteon); solutions for traditional voice and Voice over IP communications, including Nortel CallPilot* unified messaging; and a campus-wide wireless LAN for indoor and outdoor coverage.

The scenario

Though Coppin State University's previous data and voice network had once served its needs, times had changed, and, in consideration of the opportunities technology now affords, the university's ambitions had broadened.

A Historical Black Institution in northwest Baltimore, Coppin State University provides a comprehensive four-year liberal arts education to some 3,980 students, with a commitment to excellence in teaching, research and continuing service to the community. In keeping with this pledge, the university's leadership team had a vision to create a "Technology Fluency Program," an ambition, as El-Haggan describes it, "to immerse students in a sophisticated, rich-technology environment that would provide them with the necessary skills, conceptual understanding and intellectual capabilities to render them technology savvy."

Specifically, Coppin State sought to deploy a state-of-the-art, converged IP network that would provide broadband connectivity, learning-on-demand services, mobile learning, advanced security, "smart classrooms," improved communications, enhanced productivity and greater administrative efficiency.

The plan called for a new telephony platform to include both traditional and IP Telephony with unified messaging capabilities. The data network needed to be upgraded to provide greater bandwidth, reliability, redundancy, security and quality-of-service features. The plan also included a campus-wide wireless mobility deployment.

The solution

Coppin State University now has a converged IP infrastructure supporting all voice, data and video communications over a common IP Gigabit backbone. The university required a network that was scalable, easy to maintain, reliable, secure, flexible, cost-effective and well-positioned for the future. All of these objectives have been achieved. Moreover, the rollout of ubiquitous wireless LAN (WLAN) access, including wireless voice, across campus — both indoors and out — is enabling new modes of teaching as classroom instruction becomes mobile, and in some cases moves outside the traditional campus walls. Wireless IP Telephony also supports improved accessibility to public safety, facilities management and the university's IT support staff.

At the core of Coppin State's network is the Nortel Ethernet Routing Switch 8600, (formerly known as Passport*), providing scalability, split multi-link trunking and advanced routing functionality for IP services. It also includes the Power over Ethernet (PoE)-enabled Nortel Ethernet Routing Switch 8300 (formerly known as Passport) and Nortel Ethernet Routing Switch 5520s (formerly known as BayStack*), facilitating Voice over IP (VoIP) and WLAN access to classrooms and administrative buildings. Nortel WLAN Security Switches provide security and management features, including dynamic load balancing and unauthorized access point identification and containment.

Security is increased and the data center infrastructure protected with improved performance using the Nortel Threat Protection System, Switched Firewalls, Application Switches, and SSL Accelerators (formerly known as Alteon). A Nortel VPN Gateway provides secure and mobile remote access for faculty, staff and students to all campus resources. This security architecture creates an adaptive defense against hacks, attacks, worms and viruses anywhere in the campus network.

Coppin State's PeopleSoft Enterprise Resource Planning (ERP) system has secure VPN access. Its performance is optimized with a comprehensive security architecture. Nortel's Switched Firewalls are application-aware for easy deployment and support. The VPN Gateway, SSL Accelerator and Application Switches work together to help ensure that the ERP system is safe, resilient and cost-effective. In many networks, security can become a traffic bottleneck. This is not the case with Coppin State's solution. Instead, the Switched Firewall delivers over four Gigabits of throughput and the VPN Gateway off-loads encryption and application access from the ERP system — improving security, performance and cost.

The VPN Gateway supports a secure connection to the Baltimore City Police. This gives Coppin State's public safety department expedited access to police databases when performing background checks and reporting campus security incidents.

The school also deployed a new Nortel voice communications platform supporting both traditional voice and VoIP communications. CallPilot unified messaging is provided to all faculty and staff, enabling the consolidation of all email, voice mail and fax communication through a single unified Web interface.

The results

Coppin State has leveraged the deployment of the Nortel converged IP network to transform its teaching, research and administrative environment and to achieve the goals of its "Technology Fluency Program."

Its communications technology is today a competitive differentiator, helping to attract new "net-generation" students, retain top faculty and optimize the operational efficiency of its administration.

Of foremost importance in Coppin State's mission — as defined by its motto, "Nurturing Potential … Transforming Lives" — says El-Haggan, is preparing its students for the world. "We now have 40 'smart classrooms,' each hooked into our network. Each has a desktop station for every student. They all have audio-visual projectors, DVDs, VCRs, desktop PCs, wireless microphones and sound systems. And it's all centrally monitored and managed, so if any equipment malfunctions occur, an alert is generated."

Students now have secure access to campus resources from anywhere at any time. In El-Haggan's words, wireless mobility solutions are "untethering the learning process, creating learning communities anywhere on campus." Beyond the technology-enhanced classroom, says El-Haggan, "Our technology is fostering teaching innovation. Classes like geography are moving outdoors. Instructors have the option of conducting a class anywhere on campus."

Students are also able to more easily collaborate with one another and with faculty. A recent survey conducted by the Educause Center for Applied Research of over 4,300 college and university students found that the two most valuable uses of IT in the classroom are to "better communicate with the instructor" and to gain "prompt feedback from the instructor." All faculty members now have CallPilot unified messaging, providing them with a single Web interface for all their voice mail, email and faxes.

Another service of paramount importance to today's tech-savvy scholar is learning-on-demand. El-Haggan points out that quite a number of Coppin State students are living off campus and are working full-time jobs; they need access to resources at any and all hours. The new network facilitates this. For example, class lectures can be recorded and securely accessed remotely in multimedia formats through the VPN Gateway. Students can also easily access progress reports, check the status of financial applications, register for a course or access counseling anytime, anywhere.

This secure access is also simplifying the performance of administrative functions. And faculty are using it for collaborative research and grant writing, placing documents in virtual locations where they are accessible to those concerned but within which confidentiality and intellectual-property rights can be assured.

"Our goal is not just to provide technology," says El-Haggan, "but to challenge all concerned to adopt technology at a higher level; to be creative with technology. There's no way I could even consider [this vision] if I didn't think we had the robust, reliable infrastructure it requires.

"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." El-Haggan also stresses the thorough redundancy of the network. "And our Voice over IP rollout has proven both highly stable and scalable. In the last three years, there has not been a single network failure.

"This was a true partnership," El-Haggan adds. "Without that partnership with Nortel, this deployment wouldn't have happened."