eTelemetry

COPPIN STATE UNIVERSITY

Avaya voice and data solutions enable Coppin State University to transform teaching and learning, streamline administrative processes, and improve campus safety

Challenge

- Establish a robust, reliable, and highly scalable data network infrastructure, wireless system (indoor and outdoor), and IP telephony solution

- Leverage the infrastructure toward significant educational enhancements, technology access programs, and administrative and safety solutions

Solution

Avaya* Ethernet Routing Switch 8600; Avaya Ethernet Routing Switch 8300 PoE; Avaya Ethernet Routing Switch 5520s, facilitating Voice over IP (VoIP) and wireless LAN; Avaya Communication Server 1000E telephony platform; eTelemetry LENS™ (Locate 9-1-1 Emergency Notification System).

Value Created

- Approximately **90%** of students recognized that technology enhancements in the classroom contributed significantly to their learning (independent survey)

- Campus safety greatly improved by Enhanced 9-1-1, which has reduced time of response and locating an emergency by **50%**

- Numerous grants, contracts, and sponsored research have been gained based on the University's widely recognized excellence in IT: an estimated **$4.5 million** since 2003

- Productivity and effectiveness of students, faculty, and staff have increased due to consolidation of self-service and administrative capabilities on the campus portal, wireless connectivity, and feature-rich IP telephony solutions

- Lecture-capture technologies, online learning, and technology access programs have enabled students to learn anywhere, anytime, and to prepare effectively for the employment marketplace

Baltimore, Maryland— A serviceman deployed to Iraq completes a course necessary for finishing his Coppin State University degree on schedule by attending classes virtually. A resident student who becomes suddenly ill receives a lightning-fast response from emergency services because of the University's Enhanced 9-1-1 solution. A working mother of four makes the most of her study time by reviewing class lectures and simulations on her iPod touch while commuting by bus to and from work.

The outstanding IT environment that these students and thousands of others enjoy today has evolved from the commitment of academic and IT leaders at Coppin State University to establish and develop an exceptional, advanced technology infrastructure.

* References to Avaya include the Nortel Enterprise business, which was acquired as of December 18, 2009.

According to Ahmed El-Haggan, PhD, Vice President of IT, CIO, and Computer Science Professor, *"Our vision was to immerse students in a sophisticated, technology-rich environment that would provide them with the necessary skills, conceptual understanding, and intellectual capabilities to render them technology savvy. This Technology Fluency Program was directly related to our mission, which is 'Nurturing Potential, Transforming Lives."*

Over the past five years, the University has worked closely with Presidio Networked Solutions, an Avaya Connect channel partner, and many third party suppliers to develop a network infrastructure that can enable transformational changes in

> **Our data network, telephony, and wireless systems from Avaya have performed flawlessly as the foundation for all of the instructional and operational innovations that have been deployed at Coppin State University. With the vast amount of hardware and software that we are running, we've never had any worries or difficulties related to bandwidth, reliability, or scalability.**
>
> — *Dr. Ahmed El-Haggan, PhD Vice President of IT, CIO, and Computer Science Professor, Coppin State University*

the way teaching, learning, and university administration is conducted. At the core of the network is the Avaya* Ethernet Routing Switch 8600, providing scalability split multi-link trunking, and advanced routing functionality for IP services. Avaya Ethernet Routing Switches 8300 PoE and Ethernet Routing Switches 5520s facilitate Voice over Internet Protocol (VoIP) and wireless LAN (WLAN)—including wireless voice, across campus, both indoors and out. A VPN gateway provides secure mobile remote access for faculty and staff.

Establishing a new standard for educational technology systems

Dr. El-Haggan believes that IT innovations and advancements the University has been able to make over the past five years are directly related to the strength and flexibility of their network infrastructure. *"Our Avaya network capabilities are so reliable and robust, we have found it possible to envision tremendous possibilities for our faculty, students, and staff and then to deliver on those possibilities without having to worry about limitations or obsolescence."*

Wireless connectivity was immediately recognized as a tool for 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.

One of the earliest educational enhancements to leverage the new network solution was a "smart classroom" program that provided students with a digital note-taking tool and anytime access to the recorded classroom experience. A non-profit research and educational organization conducted an objective survey that indicated nearly 90 percent of the student respondents felt the new technology contributed positively to their learning.

For their new Health and Human Services Building (HHSB), which would double the number of classrooms on campus, the University wanted to establish a new standard for instructional technology systems. The planning team members spent a lot of time thinking about how they could make teaching and learning through technology easy for the faculty and widely utilized by the students.

The HHSB, completed in 2009 is, according to Dr. El-Haggan, *"one of the best-designed buildings for integrating IT services with instruction. Rooms have Internet and wireless and digital equipment specifically designed for instruction. The live presentations are blended very well with our lecture-capture systems, in which we have equipment that can track voice and record video, audio, and data and place it on the Internet for students to review."*

The University's current lecture-capture system has had an extraordinary impact on student learning and career advancement. Dr. El-Haggan cited an example. *"One of our nursing students was deployed to Iraq when he still needed to take a course required for his degree. Because of our lecture-capture system, he was able to 'attend' the*

The technology-rich Coppin University Health and Human Services Building – a multimedia lecture hall (above) and exterior view (below).

class, see and hear his faculty, view the PowerPoints and simulations, as if he was there. He passed the course and graduated on time."

Numerous systems have been installed to streamline administrative functions for students, staff, and faculty. Most are consolidated on the main EagleLINKS portal, which includes a wide range of self-service capabilities, including Blackboard and Tegrity systems and support; student enrollment, accounts, class schedules, and financial aid; library; bookstore; class rosters and grading for instructors; administrative analytics and budgets; and much more. The University has also made recent advancements in developing its storage infrastructure and business intelligence capabilities. According to Dr. El-Haggan, the impact of these technologies has been to dramatically improve the productivity and effectiveness of students, faculty, staff, and administrators.

The University's vision and excellence in IT have gained national and international recognition and awards from publications and organizations such as *U.S. News & World Report, Campus Technology, Network World, Mobile & Wireless World, Computerworld*, and EDUCAUSE.

The University's broad and innovative use of information technology has contributed to a steady influx of grants. Dr. El-Haggan estimates that since 2003, over $4.5 million in grants, contracts, and sponsored research have been received related to the educational uses of technology at Coppin State.

IP telephony and Enhanced 9-1-1

Coppin State has expanded its use of IP telephony from approximately 80% in 2005 to over 90% in 2010, with a small number of remaining TDM lines available for resident students who bring analog phones from home, and a few other applications.

Avaya IP telephony has been extremely beneficial because it minimizes the time needed for moves, adds, changes, and other management functions; it is rich in advanced features and capabilities, including directory dialing, integrated voice and e-mail, and teleconferencing; and it "untethers" staff and faculty by enabling them to conduct University business anytime and anyplace via SSLVPN, wireless on campus, and other mobility options.

At the same time, the University has been proactive in recognizing and addressing a problem inherent to centralized

"Starting with a robust, open standards telecommunications platform was essential for the success of our E9-1-1 project. The Avaya CS 1000E platform enables us to utilize a wide range of applications from many different vendors. This means we can select the best product, with the best support team, at the best price.

"Having this flexibility for the E9-1-1 project was extremely valuable because if we had been limited to one vendor's proprietary solution, we might have incurred enormous expense and not been able to implement it as effectively as we have done here. The technology not only meets our current need but also gives us the scalability to deploy new applications as the next generation of 9-1-1 protocols are instituted.

— *Dick Rader, Director of Telecommunications, Coppin State University*

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> **Today at Coppin State University, emergency response locations are effectively communicated to the 9-1-1 system and to selected University staff members. This enables everyone to react quickly and appropriately to emergency situations on campus. The E9-1-1 project has resulted in first responders reaching the precise emergency location in less than 50% of the time previously required.**
>
> —*Leonard Hamm, Director of Public Safety, Coppin State University*

telecommunications systems: the inability to provide accurate location information on 9-1-1 calls. Location information provided through a centralized PBX in a traditional, VoIP, or hybrid telecommunications environment may be either inaccurate or too general to help first responders find the exact emergency location.

According to Dr. El-Haggan, *"In view of campus tragedies such as sniper incidents and other types of concerns faced by an educational institution, we felt that we had to find a foolproof technological solution for 9-1-1 calls."*

The project began by updating the voice telecommunications infrastructure through consolidating 2500 TDM and IP handsets onto one Avaya Communication Server 1000E telephony platform. Then the team developed Enhanced 9-1-1 with automated location information. Avaya and Presidio were responsible for the E9-1-1 design based on information provided by the University, including all phone location data, routing zone layouts, handling of E9-1-1 calls, and change management recommendations to keep switch and location information current. eTelemetry was the vendor for the location and alarm appliances.

Today at Coppin State, when an individual places a 9-1-1 call, the PBX (communications server) transmits the telephone number that is assigned to the emergency response location (ERL), rather than the individual extension of the phone placing the 9-1-1 call. As the emergency dispatcher receives the 9-1-1 call, the telephone number assigned to the ERL is used to obtain the campus address and the location description of the exact zone where the 9-1-1 call originated. (At the University, an emergency response location is a unique response zone typically less than 7000 sq. ft.)

The system allows the correct location information to appear on the emergency dispatcher's screen. This detailed information enables emergency responders to locate the building and the area on the floor where the 9-1-1 call originated.

With Enhanced 9-1-1, the University can issue alerts to key staff members. The PBX generates an alarm for every 9-1-1 call. An off-board application from eTelemetry called LENS™ (Locate 9-1-1 Emergency Notification System) processes these alarms and creates an alarm with specific location information—including a floor plan of the zone from which the call originated—to the

campus police control center. The LENS application then issues an e-mail or SMS to key staff members. Upon receipt of an E9-1-1 alert, campus police can be proactive in handling 9-1-1 calls by meeting emergency responders when they arrive at the campus building.

Reemell Hercules, a nursing student at Coppin State, used the E9-1-1 system for a medical emergency. "*Both the campus police and the ambulance staff knew exactly where to find me, and they arrived very quickly,*" she said. "*My fellow students and I feel more safe and secure, knowing that the 9-1-1 system works so well.*"

Numerous benefits from E9-1-1: Foremost is the benefit of ensuring that emergencies and life-threatening situations can be reported immediately and responded to with geographic accuracy—preventing injury or death and/or minimizing property damage (as in a fire). This also prevents wasting community resources by saving the time spent when first responders have to search for an emergency location.

There is a strong public relations advantage because the University can more easily attract students, faculty, and staff as the community becomes aware of the enhanced safety and security now instituted at the University. The University is now less susceptible to liability and financial risk related to a human tragedy or property loss that might result from an insufficient or flawed 9-1-1 system.

Leonard Hamm, Director of Public Safety for Coppin State University, summed up this success factor: *"Today at Coppin State University, emergency response locations are effectively communicated to the 9-1-1 system and to selected University staff members. This enables everyone to react quickly and appropriately to emergency situations on campus. The E9-1-1 project has resulted in first responders reaching the precise emergency location in less than 50% of the time previously required."*

Expanding students' access to electronic devices

"Supplying a technology-rich campus environment for our students is not enough," Dr. El-Haggan stated. *"Many of them are financially challenged—either living with low-income families or working one or even two jobs to support their own children in addition to attending school. This means they cannot always afford the devices that enable them to take full advantage of the technology that we provide. As a result, we are always looking for ways to make the devices accessible and affordable for our students."*

Coppin State offers a laptop ownership program that enables students to purchase computers at half price, with payments spread across four semesters. (Through a special grant, the University pays for the remaining 50% of the cost.) For many students, this becomes the only computer in their homes, so there is not only education value for the student but cultural value for whole families as well. *"When we surveyed and found that originally only 30% of our students had access to digital technology, there was no question that a program such as this was needed,"* Dr. El-Haggan said.

Another program provides iPod touch devices for students in the University's education and nursing schools. This enables them to take advantage of wireless capabilities throughout the campus, without paying monthly fees for access.

"It's hard to describe what a difference these programs can make to the students," Dr. El-Haggan commented. *"Recently I got a call full of joy and happiness from one of our students in the Para-Teacher program when he passed the PRAXIS exam. He attributed his success to the iPod Touch program that we piloted in his class."*

Dr. El-Haggan cited another example: *"We have a female student in the nursing program—a working mother of four who does not own a car—who uses her iPod touch to download information, simulations, and lectures to review as she commutes on the bus.*

"These two stories are representative of many real-life situations where the technology and the availability of electronic devices make such a difference in the lives of individuals."

Learn More

For more information on how Avaya Intelligent Communications can take your enterprise from where it is to where it needs to be, contact your Avaya Account Manager or a member of the Avaya Connect channel partner program, or access other collaterals by clicking on **Resource Library** at **www.avaya.com**.

Statements in this case study were made by Ahmed El-Haggan, PhD, Vice President of IT, CIO, and Computer Science Professor; Dick Rader, Director of Telecommunications; Leonard Hamm, Director of Public Safety; and Reemell Hercules, a nursing student at Coppin State University.

APPLICATIONS AND SYSTEMS
- Avaya Ethernet Routing Switch 8600
- Avaya Ethernet Routing Switch 8300 PoE
- Avaya Ethernet Routing Switch 5520s
- Avaya Communication Server 1000E
- eTelemetry LENS™ (Locate 9-1-1 Emergency Notification System)

ABOUT COPPIN STATE UNIVERSITY

Coppin State University is a historically black, four-year comprehensive liberal arts university that offers 26 majors and 11 graduate degree programs in the arts and sciences, teacher education, nursing, graduate studies, and continuing education. Coppin is a fully accredited, residential institution with the unique mission to address the problems, needs and aspirations of the people of central Baltimore and its immediate metropolitan area. As part of the University System of Maryland, Coppin serves Baltimore residents as well as students from around the world. Coppin State University has a K-16 model, as it manages and oversees Rosemont Elementary/Middle School and The Coppin Academy High School, which opened in Fall 2005 and is housed on the institution's campus. During the year 2010, Coppin State celebrates 110 years. Dr. Reginald S. Avery is the President of Coppin State University. For more information, visit **www.coppin.edu**.

ABOUT eTELEMETRY

eTelemetry is the leader in extracting real-time business information from network activity. eTelemetry's award-winning products provide life-saving 911 location information, monitor and control employee web surfing, and provide network device identity for security and compliance. Since 2004, eTelemetry has been Turning Network Traffic into Business Intelligence™. For more information, visit **www.etelemetry.com**.

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Presidio Networked Solutions, Inc., the leading provider of advanced IT lifecycle solutions, addresses the complete technology lifecycle – plan, design, integrate, operate and optimize – for the enterprise, commercial and government markets. Presidio's comprehensive solutions portfolio comprises Unified Communications, Wireless, Security, Storage, Network Infrastructure and Managed Services. For more information visit: **www.presidio.com**.

ABOUT AVAYA

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