



Hall County Schools

Pioneering secure, cloud-based education

By Patrick Sweeney

At Hall County Schools, cloud computing is broadening academic horizons. The district uses SonicWALL® Next-Generation Firewalls to secure traffic from diverse endpoints accessing educational resources through the cloud, while maintaining quality of service.

Like their business counterparts, academic institutions are embracing the cloud as an agile, cost-effective environment to support critical applications for students, faculty, and administrators. Moreover, school districts are finding ways to improve the quality of education within tight budget constraints as they seek cost-effective alternatives to traditional textbooks, test sheets, and lab rooms in the form of hypertext, online assessments, and virtual collaboration. Easy access to academic resources and distribution of information over the Web enable districts to revolutionize traditional classroom instruction techniques with an interactive digital curriculum across all grade levels.

Because cloud computing does not generally require the purchase of additional IT equipment, cloud-based software as a service (SaaS) and platform as a service (PaaS) offerings help schools avoid up-front costs by shifting IT infrastructure from a capital expense to an operating expense. In addition, the flexibility of cloud computing enhances a school district's ability to quickly and easily revise the curriculum in response to emerging educational or funding requirements.

At the same time, opening the classroom to the cloud carries the inherent risk of exposing students to the threats and insecurities of the Web.

Plus, it may tempt students and faculty to engage in social networking, gaming, and streaming media sites that diminish productivity and rob bandwidth from critical educational applications. To counter these issues, academic IT departments can deploy high-performance, next-generation firewalls such as SonicWALL SuperMassive™ E10000 Series appliances. This comprehensive approach is designed to combine the processing power, port capacity, malware protection, and application intelligence and control required to secure rapidly growing academic traffic through the cloud—while still helping to ensure quality of service (QoS) requirements.

Embracing the cloud: Hall County Schools

One academic institution that actively engages in cloud computing is Hall County Schools. Based in Gainesville, Georgia, this public school district employs more than 3,200 teachers and staff members, who serve more than 25,000 students attending 20 elementary schools, 6 middle schools, 6 high schools, and 1 alternative/evening school. With assistance from Dell, the district established the HALLConnect Connected Learning platform, which provides a cloud environment that enables students and faculty to collaborate using Agilix learning management tools.¹



¹ For more information about how Hall County students are getting a head start through the HALLConnect platform, see "Welcome to the classroom of the future," in *Dell Power Solutions*, 2011 Issue 1 *Connected Learning* special edition, content.dell.com/us/en/enterprise/d/business-solutions~power~en/documents~ps1q11cl-20110194-hall.pdf.aspx.



Keeping the network safe for students

Tune in as C. J. Daab and Jeremy Hutton of Hall County Schools discuss how the district leverages SonicWALL appliances to help keep their network safe for students and increase quality of service for critical educational applications.

www.sonicwall.com/HallCountyVideo

“More students and teachers are going to use more mobile devices and smartphones to access our HALLConnect cloud resources. SonicWALL SuperMassive will help us manage and secure that increased traffic without bottlenecking performance.”

—C. J. Daab

Technology support coordinator at Hall County Schools
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Topmost of the district's concerns was compliance with the Children's Internet Protection Act (CIPA). CIPA requirements apply to any school or library that receives funding for Internet access or internal connections from the E-Rate program, which provides discounts for certain telecommunications services. To secure the new cloud environment for CIPA compliance, the district needed a comprehensive approach that provided granular, policy-based control over cloud computing applications and Web sites. “The biggest security challenge to me today is trying to keep the network safe for our students,” says Jeremy Hutton, network engineer at Hall County Schools. “They continuously try to get to various social networking sites.”

Moreover, the district needed to control how much bandwidth the cloud-based applications consumed; to optimize use of the high-performance network infrastructure, these applications could not be allowed to create a bottleneck. In addition, the district had deployed critical latency-sensitive voice over IP (VoIP) and teleconferencing applications, which demand high QoS levels. Cloud computing could not come at the expense of performance.

Consolidating costs and administration

To maintain compliance, schools have traditionally used content-filtering solutions that apply static white lists and blacklists to control student access to potentially harmful or inappropriate Web sites. However, these traditional approaches often come down to an either-or defense. For example, a school might block all network access to a social networking site to protect students. Yet at the same time, the blockage would prevent teachers or deans from monitoring that site's activity to identify serious social issues such as cyberbullying. Traditional solutions that rely on restricting all Web access over port 80 or 443 impair access to legitimate cloud-based applications.

Previously, Hall County Schools subscribed to a traditional content-filtering solution. When the district decided to consolidate its content filtering into a comprehensive on-site platform with flexible, policy-based controls, it turned to SonicWALL Next-Generation Firewalls. The district installed the SonicWALL E-Class Network Security Appliance (NSA) E7500 and SonicWALL SuperMassive E10400 next-generation firewalls to protect its metropolitan area network (see Figure 1).

By combining two solutions—one for content filtering and one for the firewall—into



one SonicWALL solution, Hall County Schools was able to realize significant cost savings from eliminating the annual paid subscriptions. "SonicWALL has saved us up to 50 percent in costs," affirms C. J. Daab, technology support coordinator at Hall County Schools. "Our savings have been twofold, both in consolidating appliance costs and in reducing overhead of network administration." Because one network administrator could effectively manage the SonicWALL solution, Hall County Schools could free another staff member to manage other tasks. "I'm able to effectively use my staff for more customer support...either training or to help peers learn more networking skills, so that we become a better organization," says Daab.

The new consolidated approach involved setting up the Microsoft® Active Directory® directory service to enable single sign-on (SSO) logon to the campus network. SSO allows Hall County Schools to enforce appropriate cloud-access policy based upon the user's Active Directory identity as a student, faculty member, administrator, or guest. In addition, policy can be enforced based on the endpoint platform—for instance, whether the user is connecting from a Microsoft Windows® OS-based or an Apple® Mac OS-based device; or whether the endpoint is an IT-managed or unmanaged personal device.

Securing the cloud with application control and visualization

The Web not only exposes students to inappropriate content, it also exposes them to malicious code, viruses, spyware, and adware, as well as productivity-draining applications such as games, videos, and streaming music. These applications can bog down network throughput, consuming bandwidth at the expense of legitimate cloud-based academic programs and degrading the performance of latency-sensitive resources such as video, teleconferencing, and VoIP.

To address these concerns, the district's next-generation firewall solution integrates

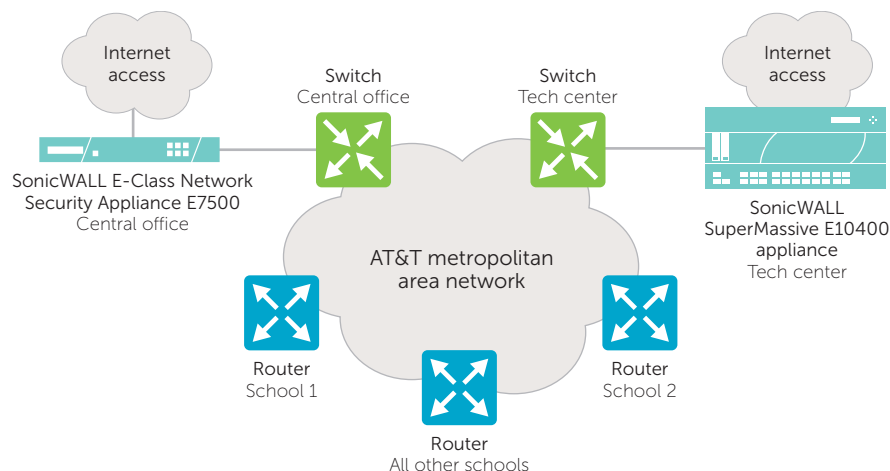


Figure 1. Overview of the Hall County Schools metropolitan area network

gateway antivirus, anti-spyware, intrusion prevention, and application intelligence and control with real-time visualization. "Application intelligence allows us to dig deeper into the resources that our students and staff are using," says Hutton. "It gives us better options to utilize that traffic, see what traffic is going across the network, and take certain applications and give them quality of service as needed. And also take video sharing and other services that are not needed and slow them down and not allow them the high bandwidth."

"The visualization is huge for us," adds Hutton. And Daab notes, "We can now monitor bandwidth going across each interface in real time."

Accelerating cloud performance and scalability into the future

To promote and enable access to the HALLConnect Connected Learning cloud environment over the on-campus wireless local area network, the Hall County board of education modified district policy to allow students to log in from their own laptops, netbooks, tablets, and smartphones. The increase in cloud-based academic resources led to an increase in the number and diversity of endpoint devices that students use to access the cloud. As a result, the growing popularity of mobile platforms is expected to double

the number of concurrent users accessing cloud resources over the district's network.

The SonicWALL SuperMassive platform enables active/active clustering and shared processing power across its architecture, so the platform can scale to grow over time. The SuperMassive E10000 Series is upgradeable to 96 cores; the district can cluster another unit to expand from 96 cores to 192 cores, thus extending performance and hardware redundancy without disrupting the network.

"More students and teachers are going to use more mobile devices and smartphones to access our HALLConnect cloud resources," says Daab. "SonicWALL SuperMassive will help us manage and secure that increased traffic without bottlenecking performance. It keeps us at the forefront of this changing landscape." **PS**

Author

Patrick Sweeney is vice president of the product management team at SonicWALL, where he oversees its network security, content security, business continuity, and policy and management product lines.

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