Networks for eLearning in Primary Education

- Unique network features address cost, complexity and capacity challenges
- Easy to scale, school-wide Wi-Fi for consistent, uninterrupted learning
- Extensive scalability and smart management to support future transformation in eLearning

A Need for Network Capacity and Scale

Adoption of eLearning in schools has seen "broadband and network capacity" become the top challenge for their IT teams[1]. Advancements in instructional technology and government-led drives for more access to digital education resources, has seen the networks' role in improving student outcomes grow in importance.

With only 11 percent of schools banning the use of students' own devices on campus,[2] the number of devices connecting to school networks is escalating. Access to educational materials and resources via portals and school websites is likely to accelerate. Reliable access to the internet outside of the classroom setting, but on school grounds, is also increasingly a requirement, as is ensuring access to Open Educational Resources (OER).

Yet only 17 percent of IT leaders believe staffing levels are matched to the needs of maintaining network systems, and 7 percent feel this is true with regards to implementing new technologies[3]. "Budget constraints and lack of resources" are still cited as the biggest challenges to providing digital learning environments. A new approach to K–12 networks, to provide the required consistent connectivity, simplified management and installation—all at a viable price point—is now required.

Non-stop Networking for Better Student Outcomes

50 percent of teachers report working with limited wireless network connectivity, with access to digital materials and instructional platforms only available in some classrooms, and to some students, with regular periods where the network is down completely[4].

Primary education networks must evolve to provide immediate capacity increases, easy scalability, and simple and easy management. They must also be built on technologies that are interoperable to support adoption of best of breed new technologies—regardless of vendor— in the future. Such flexibility must be prioritized in fast changing sectors such as education, to protect against additional unnecessary spend at a later date. Any

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[1-3] Consortium for School Networking, *K–12 IT Leadership Survey Report - 2016*.

[4] Education Week Research Center, *Wi-Fi Woes: How Mediocre Wi-Fi Interferes With Instruction In American Schools – February 2016*.

investments must improve and ideally reduce total cost of ownership, while resulting in a network that is robust and reliable.

Resilient, Reliable Connectivity with Brocade Ruckus Networking Solutions

Building the right network for K-12 environments requires a more holistic approach to the network. The underlying physical network must be less complex, require fewer devices, and support significant increases in scale, and new instructional technology applications, without significant increases in cost.

Thousands of schools worldwide have deployed the Brocade® Ruckus™ family of networking solutions to meet this challenge. In particular, Brocade Ruckus ICX® switches offer "pay-as-you-grow" scalability, enabling simple expansion from 1 GbE up to 40 GbE as demand dictates. The switches support next-generation 802.11ac Wave 2 wireless APs to sustain more user connections per AP. This means fewer switches are required to support increasing demand while delivering "enterprise-class" stackable switching at an entry-level price.

Single-point management and IPsec encryption support extension reduce the management burden while increasing security. The switches feature robust Power over Ethernet (PoE, PoE+, and PoH) support to power provision the latest wireless access technology, video surveillance and conferencing equipment, VDI terminals, and HD displays in sensitive areas and classroom environments.

Smart, Simple-to-Scale Wi-Fi

The best wireless access solution needs to provide more than capacity or bandwidth to offer the uninterrupted, consistent, campus-wide connectivity that today's eLearning applications demand. For school environments, a cost-effective enterprise-quality Wi-Fi solution that is secure, scalable, easy to install and manage is also required.

Brocade Ruckus ZoneFlex Access Points (APs) are the ideal wireless access technology for education. ZoneFlex APs offer unique technology proven to deliver high-quality access and service delivery in high-density device environments. With these dual-band 802.11ac Wave 2 APs, schools can provide consistent high-performance connectivity to users on 802.11ac and legacy 802.11a/b/g/n devices.

These APs deliver better coverage while reducing the number of them required to support school wide internet access, and are easy and fast to configure and install within a few hours without the need for extensive surveys in advance. SmartMesh networking removes the need for Ethernet cabling wherever APs are needed, enabling their placement to be dictated by coverage requirements, not cable availability.

These smart APs can be flexibly deployed with or without a Wireless Local Area Network (WLAN) controller, and can handle all control traffic and probe requests and responses, as well as the data path between wireless clients. They are also equipped with Brocade Ruckus BeamFlex technology, with adaptive antennas and signals, that enable the Wi-Fi infrastructure to dynamically optimize for each device connecting to it, and

continuously reconfigure itself to address interference, high device density, converge gaps, and other problems in real time. This eliminates the lack of availability and slow connectivity issues that have previously impacted digital instruction in classrooms, while further reducing the number of APs required.

Where use of video and voice over Wi-Fi is required in class, Brocade Ruckus SmartCast further enhances the features embedded in the wired and wireless devices deployed to provide intelligent, advanced traffic classification, and per-client queuing and scheduling. This eliminates the delays and poor quality that can render video and audio over Wi-Fi otherwise unusable, while preventing negative performance impact on other network users.

The most scalable and robust technology in the classroom won't be utilized if the device onboarding process is too cumbersome or unsecure. This is where the Brocade Ruckus Cloudpath solution shines. It allows IT administrators to quickly onboard devices simply, securely, cost-effectively, and at scale. Especially relevant for the K-12 IT administrators, the Cloudpath extension to Google admin console allows for fast on-boarding and administration of Chromebook devices to streamline 1:1 initiative deployments.

LEARN MORE

Read how other school districts are delivering the required connectivity:

- *Lower Dauphin School District*
- *Columbia Public Schools*
- *Dublin Unified School District*

Creating the Foundation for eLearning

With these solutions in place, K-12 IT providers and teams can assure teachers and students of uninterrupted wireless access, with performance that supports the digital instruction and study needed to inspire young minds and encourage their aspirations. They also have the right solutions in place to provide the foundation for the solid, pervasive network security required to help protect student data. And the extensive yet simple scalability and interoperability ensures a future-proof foundation for further enhancements as instructional devices and systems evolve and eLearning becomes less tethered to the classroom environments we know today.

These solutions are already enabling K-12 institutions, school districts and IT suppliers across the world to enable eLearning and support improved student outcomes.

To join them, visit http://www.ruckuswireless.com today to learn more.

For more information about Brocade solutions, visit www.brocade.com.