Managed WiFi: A Connectivity Solution for K-12

It's the digital age, and education is no longer built solely on textbooks, blackboards and notebook paper. In order to fully support students, schools need to ensure constant access to fast, dependable WiFi. However, many schools currently operate on a wireless LAN (WLAN) architecture that's poorly equipped to meet the capacity and security requirements of today's K-12 landscape. In light of growing inefficiencies associated with outdated wireless networks, schools are beginning to opt for a managed WiFi network capable of ensuring consistent connectivity through one robust, externally-managed network.

The Current State of K-12 WiFi

Many schools operate on WLAN architectures they implemented more than a decade ago. While they may have been suitable then, these architectures present a number of issues today, beginning with security. "Filtering software that has been developed to block restricted material is imperfect and costly. Therefore, schools and libraries are advised to weigh the costs and benefits of installing the software and maintaining it with the amount of federal subsidy received – some libraries have chosen not to install the software because it costs more than the federal subsidy forgone as a result."[1]

Teachers and students are eager to embrace digital learning and pedagogical approaches, such as the flipped classroom, that are facilitated by wireless technology. But most WLAN architectures simply can't handle the influx of mobile devices, laptops and tablets, and the traffic that they impose on the network. "The bandwidth required for today's student to upload high-definition multimedia content, participate in an online video conference, and curate an electronic portfolio of learning far exceeds what was required to give students access to early online tools such as email and static reference materials."[2]

When connectivity is inconsistent, it discourages Internet use and impacts the educational experience for everyone involved. Teachers have a finite amount of time with students in the classroom. Productivity takes a hit when students can't collaborate via Google Docs or teachers can't login to their classroom management programs. Meanwhile, understaffed IT departments also feel the strain. Outdated WLAN architectures are not easy to manage, never mind the task of supporting various user groups – students, teachers, and staff and administration – and their various devices.

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[1] The First Amendment in Schools: Resource Guide: Access to Information on the Internet
http://ncac.org/resource/the-first-amendment-in-schools-resource-guide-access-to-information-on-the-internet
[2] Future Ready Schools: Building Technology Infrastructure for Learning
https://tech.ed.gov/wp-content/uploads/2014/11/Future-Ready-Schools-Building-Technology-Infrastructure-for-Learning-.pdf

Managed WiFi Solutions: Solving the Challenges of Delivering Robust Connectivity

Managed WiFi solutions address the problem of outdated WLAN architectures. Managed WiFi is an IP-based service offering that includes fully managed, monitored, supported, secure, end-to-end wireless network connectivity. Modern technology infrastructure is installed, managed and supported on-premises by a service provider to ensure consistent, reliable connectivity.

Managed WiFi solutions open up new use cases for technology in the classroom such as remote education, which is suitable for students who are absent from school or who can generally benefit from an independent learning experience.[3] "Broadband makes new services available to people with physical disabilities, such as attending classes remotely, eliminating the need for unnecessary or difficult commutes or trips."[4] It also enables the use of interactive tools within the classroom. "With adequate bandwidth, teachers are able to use free tools like Skype to break down the walls of the classroom, connecting students with experts around the world to open up new worlds of opportunity."[5]

Managed WiFi in the classroom also helps bridge socio-economic gaps. Just as school lunch programs are vital to the nutritional requirements of millions of students, the same is often true regarding Internet access. The most affluent Americans generally have home Internet adoption rates of 80-90%, while the lowest median incomes have home adoption rates of only around 50%. Also, "older, less educated, less affluent and rural populations have fewer choices and slower Internet connections."[6] Giving students Internet access at school grants them advantages they wouldn't have otherwise.

A managed WiFi solution provider can also help K-12 educational institutions address the challenges that come from providing Internet connectivity on campus. For example, the provider can work with the school district to facilitate buy-in from the school and can collaborate with the IT department to ensure the best use of resources.

Managed WiFi solution providers can also help schools address privacy concerns and protect student data. Credible providers are familiar with the Children's Online Privacy Protection Act

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[3] Changing a Rural Community's Expectations Through 24/7 Learning
http://digitalpromise.org/2014/08/27/a-model-for-21st-century-rural-education-at-piedmont-city-school-district/

[4] The Benefits of ConnectED and Faster Internet in Schools and Libraries are Enormous
https://www.benton.org/node/159246

[5] The Benefits of ConnectED and Faster Internet in Schools and Libraries are Enormous
https://www.benton.org/node/159246

[6] Here's What the Digital Divide Looks Like in the United States
https://www.whitehouse.gov/share/heres-what-digital-divide-looks-united-states

(COPPA), which prevents the release of electronic data from students under the age of 13 unless they have parental permission, and the Family Educational Rights and Privacy Act (FERPA), which prohibits schools and their contractors from releasing information about sensitive student education records, such as grades.[7] A provider can also advise schools on allowing parents to opt out to prevent the release of "directory" information, like the student's name, address, phone number, date of birth and dates of attendance.

The benefits of a managed WiFi solution also extend to the school's budget. Because managed WiFi solutions are delivered as a service, there are no upfront costs or capital expenditures. The district pays a low monthly fee to the service provider. These fees can be covered any number of ways, including via federal education grants. The FCC's schools and libraries universal service support program (aka E-rate program) provides discounts of up to 90% to eligible schools, school districts and libraries for managed internal broadband services.[8]

Lake Tahoe Unified School District uses E-rate funds, as well as bonds, general funds and categorical funding to provide in-school and home Internet connectivity via managed WiFi and 3G networks. "These vendor relationships permit LTUSD to provide students with connectivity without having to continuously update IT staff on latest technologies." [9] With 60% of the district's students qualifying for free or reduced-price lunch, the connectivity also helps to close the socio-economic gap.

Managed WiFi is a critical, evolutionary step as education transforms for a digital age. Private sector organizations are using digital technologies like Big Data analytics and the Internet of Things (IoT) to become more competitive and deliver better services to constituents. The use of IoT devices is beginning to expand across the nation, providing new technology for teaching students and for better managing the classroom. The potential for the future of education is huge. IoT devices that could be used in the classroom include interactive whiteboards, temperature sensors, wireless door locks, smart HVAC systems and security video systems.

Federal funding is available to help make such innovations more available to school districts. Such technology is another step towards the ultimate goal of a customized educational experience for every child, but they also introduce new governance and security issues that must be addressed.

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[7] School District Apps: Concerns About Privacy, Transparency http://www.star-telegram.com/news/local/education/article52728555.html

[8] E-Rate – Schools & Libraries USF Program https://www.fcc.gov/general/e-rate-schools-libraries-usf-program

[9] Future Ready Schools: Building Technology Infrastructure for Learning https://tech.ed.gov/wp-content/uploads/2014/11/Future-Ready-Schools-Building-Technology-Infrastructure-for-Learning-.pdf

Conclusion

High-speed Internet connectivity plays a critical role in the K-12 classroom. Students need to learn how to collaborate, conduct research and create content in order to be successful in the 21st Century. Managed WiFi provides all the benefits of high-speed Internet connectivity that schools need without the management and support burden that they don't, while providing a bridge for more technological innovation just around the corner. Education in the near future will be supported by IoT powered devices, maximizing educational investments and improving the learning experience for each child.

Of course, the requirements of funding and compliance never go away. But funding programs like E-rate and ESSA can help make managed WiFi your bridge for accessing emerging IoT trends. CenturyLink has a great deal of experience with all the intricacies of the process, and can share proven best practices with your organization.

To start the conversation, please visit www.centurylink.com/k12.