

Meeting the Demand for Broadband



To support BYOD, 1:1 and more in your district, high bandwidth is essential

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Online learning is an exciting and limitless prospect, but the applications and devices required to support it demand a robust district network infrastructure. Though establishing the necessary broadband foundation can seem daunting, the resulting benefits are worthwhile pursuits. This web seminar addressed the importance of broadband today and in the future, factors to consider when developing a network plan, and the innovative initiatives made possible with high amounts of bandwidth.

Kevin Carman: The National Broadband Plan published by the Federal Communications Commission several years ago outlined a roadmap for how broadband can be used to accomplish a lot of this country's goals. There was a chapter on education and the important role broadband plays in it. The United States' long-term success depends on improving learning for all students; broadband can help reverse patterns of low achievement.

If you ask an economist to talk about broadband in terms of education, they probably would say that broadband has a lot of positive externalities. That's an economist term meaning the by-product of broadband creates greater impact in society than the personal broadband use supply and demand curves suggest. If you have greater broadband availability, you have greater speed of business transactions on the commercial side. With education, you have greater access to information, greater tools and resources for teachers to drive student engagement, greater ability to aggregate data and analyze and diagnose where students need remediation. Broadband creates such an impact that society as a whole has a greater need for broadband than individuals do at an individual level.

The State Education Technology Directors Association came out with "The Broadband Imperative" white paper in 2012. The report outlined what schools should consider for broadband speeds for both WAN and internet access, in light of the migration to online testing, the Common Core, and the movement to digital curriculum. For the 2014-2015 school year, SETDA recommends 100

megabits of internet access and WAN connectivity of one gigabit per school with 1,000 students. By 2017-2018, the report recommends these benchmarks grow to 1GB for internet access and to 10GB for WAN.

This past E-rate season, we saw more RFPs for 1GB network connections at remote ends and 10GB connections at data center ends than we've ever seen before. On the internet side, the same phenomena. Much more bandwidth is being contemplated in technology roadmaps by schools.

Eduardo Javier Moreno: Edinburg Consolidated ISD has approximately 33,400 students, with 43 schools, and eight non-instructional sites. We cover a geographic area of 950 square miles, which presents unique challenges in designing network infrastructure.

All of our school sites are linked back to our network operations center, and 98 percent of our schools are linked with 500MB of AT&T's GigaMan fiber services. This has played a huge role in the design, architecture, and services we are able to deliver to our end users. Our current saturation with wireless access points is 175 at each high school, 75 at the middle schools, and 35 at the elementary schools. Starting the next E-rate year, the plan is to have completed a 1:1 wireless access point classroom distribution by the end of fall 2013.

Everyone knows there has been a huge increase in the number of web-based applications, not only on the instructional side, but also on the administrative side.



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The video and audio streaming that are often included in these apps eat a lot of bandwidth. Additionally, online testing, digital curriculum, and digital textbooks are driving the need for more bandwidth.

Mobility and wireless rule in education. The success of the design and architecture of a Wi-Fi network, managing your bandwidth and SSIDs is critical. It's not just about ensuring you have the appropriate wireless access point model, it's also about making sure you are managing any bottlenecks through your network:

- Network hardware switching
- UPS Management
- POE Requirements
- The additional cabling that may be required to run these POE access points

When you are talking about SSIDs and managing your network, one of the first areas we had to look at was authentication. We had to decide whether we were going to segment our wireless network to try to create differentiated internet access for teachers, district-endorsed 1:1 initiatives, and student devices. Instead of requiring authentication for all of our users, we chose to broadcast an open public Wi-Fi SSID for all users. Any user who comes onto our campus can log into our open network and have unlimited bandwidth capabilities. We have embraced bandwidth the same way we have embraced our utility services. You would never put a limit on the amount of electricity a school uses, and we are viewing bandwidth in the same way. Each of our 2,300 teachers in ECISD receives an iPad and a laptop, which saturates our network daily and makes unlimited bandwidth a necessity.

Our open Wi-Fi network is filtered. As an educational institution, we are required to be CIPA compliant. Instead of incorporating additional management and hardware to manage the devices on our network, we are focusing on education, awareness, and administrative policy. We centrally manage our filter to ensure everyone's experi-



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ences are as safe as possible, but because of the openness, there is no device management.

We have a BYOD initiative that allows students to bring their own laptops and tablets to school. We also have some programs, such as early college, PSAT and AP courses, and career and technical courses, where we have a 1:1 iPad program. To support this program, students have access to a technical support resource and an internet safety course. As a result, we have seen an increased enrollment in our career and technical program.

Library e-books are another reason bandwidth has had to increase across our district. All of our campuses manage an online catalog of library books for students to check out in the classroom, on campus, or at home. We are also embracing and looking for the right vendor partnership that will give us a device-agnostic library to support our BYOD program.

Instructional course content includes different strands of curriculum, including:

- State-endorsed books
- District-written curriculum
- Teacher-generated resources

The question is how to digitize these resources? Most schools today are considering this paradigm shift of switching from hard-copy textbook ownership to subscription-based license purchasing. Of course, supporting a classroom full of students using online textbooks or resources requires high bandwidth.

Every campus in our district has a conferencing unit, as well as a portable, high-bandwidth consumptive videoconferencing unit. Every conference room has a desktop model. These units allow for meetings, training, school-to-school communication, virtual field trips, and more. The utilization of this technology in our schools is extremely high. Our district covers such a large geographic area, and videoconferencing allows our staff to join together and collaborate without having to be in the same building.

To watch this web seminar in its entirety, please go to: www.districtadministration.com/ws060413