

WITH AMBITIOUS DIGITAL LEARNING PLANS AND NEW REQUIREMENTS, SCHOOLS REQUIRE GREATER NETWORK REACH



Schools and universities are venturing into areas that require more bandwidth and more reach than ever before—digital learning, online assessments and assessment tools, and streaming video just to name a few. Everything from e-textbooks and WiFi in stadiums to fully online public schools and distance learning programs have changed the face of K-12 and university education.

In addition to enhancing learning, improving assessment and fostering innovation, all of these applications share one thing in common—they require reliable, pervasive network connectivity, regardless of geographic location. Without the network infrastructure to back up these advances—not to mention future applications and services that will need the same network reliability and reach—these services simply can't reach their full potential.

FIBER CAPABILITIES

Fiber is the support behind high-performance networks. Without fiber, networks don't have the ability to ratchet up bandwidth to 100 Gbps to meet the needs of schools and higher education. Older copper-based networks rely on frame relay, T1 and other low-bandwidth, TDM-based technologies. That makes it difficult and expensive for educational institutions to add additional capacity, especially outside of the immediate geographical area in which the network is concentrated.

Fiber networks are scalable and allow for easy and fast provisioning of network services. Finally, the data that passes through fiber networks is secure, because fiber optics don't radiate RF signals and because fiber networks can take advantage of remote monitoring and troubleshooting technology. All of this allows K-12 schools and higher education to adapt to changing needs and requirements, such as digital learning, increase collaboration, and geographic expansion.

When considering an Ethernet-over-fiber network, look for a service provider that owns and manages its networks and its technology from end to end. If not, the network could actually be partly newer Ethernet over fiber and part legacy copper technologies, which will inhibit scalability and bandwidth.

BANDWIDTH FOR THE NETWORK

A highly scalable, large-capacity native Ethernet network provides the ability for each location to receive the same level of performance, regardless of location.

Bandwidth that is scalable also allows you to take advantage of the latest bandwidth-intensive trends and technologies, such as distance learning for K-12 students or collaboration with researchers at other universities.

While it might seem to be overkill to anticipate needing as much as ten times the bandwidth you do today, it is the reality of today's world. For example, a report from the State Educational Technology Directors Association (SETDA) found that today schools need 100 Mbps for every 1,000 Internet users. That number will rise to 1 Gbps per 1,000 students or 1 Mbps per user by 2017. Schools also need a modern network infrastructure on which to run that bandwidth. According to a survey from eRepublic, the vast majority of K-12 administrators agree that a modern network infrastructure is linked to the school district's success, and that modernizing the network infrastructure is a top priority.

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— SETDA

REACHING USERS, WHEREVER THEY ARE

By choosing a network provider with a very large footprint in both residential and business locations, schools can be sure that the network will be able to accommodate new locations over time.

In some cases, adding more capacity to an older network would mean adding another service provider to the mix. This type of hybrid network can mean more time to diagnose and fix problems.

Choosing a network with the broadest reach possible also helps agencies deal with the inevitability of shadow IT—IT projects and technology developed and managed outside of, and often without the knowledge of, the school district or university IT department. It could be almost anything—an academic department that set up its own learning management system, the engineering department might develop a website that requires a lot of bandwidth, or an entire department might build its own data center. According to a survey from Extreme Networks, it's a big concern—31 percent of CIOs at colleges and universities are worried about shadow IT.

With shadow IT on the rise, it's even harder to predict how much bandwidth a school will actually need, and what locations will require high bandwidth allocations. If there isn't enough bandwidth to handle the increased demands on the applications, the student and faculty experience will be less than optimal. Since shadow IT isn't going away any time soon, it makes sense to increase bandwidth to more places. In other words, plan for the unexpected.

WHAT'S POSSIBLE

With an extensive network reach, schools have the resources to get advanced educational applications and services. In the K-12 world, for example, standardized testing and Internet-based learning tools are two of the biggest consumers of bandwidth. That means that every elementary school needs fast, reliable connectivity to every classroom, and fast, reliable connectivity to the Internet and the district's data center.

In the world of university research, high-performance networks with an extensive reach can make the difference between success and failure. Think about a lab that needs to test an application that will require massive computing power for six months. With an all-Ethernet-over-fiber network, the lab can request and quickly receive the additional capacity for six months and then reduce it back down. The project's researchers are also likely working with other facilities in other areas to transmit test results or access information. With an extensive network, data can be shared between a dispersed team of researchers easily and quickly.

Take the example of the Pittsburgh Supercomputing Center (PSC), a nonprofit collaboration between Carnegie Mellon University and the University of Pittsburgh that offers advanced supercomputing infrastructure for science and engineering projects. By using Comcast Business Ethernet, the PSC can provide secure, private network connections to eight associated colleges and universities without worrying about capacity or reach.

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In the Oakland, Ca. Unified School District (OUSD), the challenge was finding a way to increase speed and reach. With nearly 35,000 students and 5,000 staff members across more than 100 sites, it was important to enable both students and staff to access high-speed broadband from a variety of locations for everything from accessing learning resources to streaming HD video. OUSD achieved that goal by using Comcast Business Ethernet Services, which has increased average broadband speeds across the OUSD network from 50 Mbps to 1 Gbps for elementary schools and 5 Gbps for middle and high schools. If necessary, it can even scale the network to provide schools with up to 10 Gbps.

As education institutions change and grow, they must be able to count on a reliable, scalable, far-reaching network to support those changes. With the network no longer a concern, decision-makers can get on with the business at hand—to help make learning as effective as possible.

Learn more about Comcast Business Ethernet Services at
<http://business2.comcast.com/ethernet>.