



ETHERNET: PAVING A PATH TO HIGHER LEARNING

How educational environments are going digital—and how to best support them

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Today the “classroom” has gone well beyond chalkboards and overhead projectors. As the rest of the world has moved into the digital age, many K-12 learning environments have made great strides to move along with it—everything from Smart Boards, online testing, and streaming media to videoconferencing and distance learning. These innovations, along with new requirements such as Common Core State Standards (CCSS), have led to a dramatic increase in demand for computing power in the classroom. Reliable, high-speed communication is key—and these needs are expected to continue to expand well into the future. Schools are increasingly turning to Ethernet connectivity to gain the flexibility, scalability and value they need to meet digital demands.

This white paper examines the digital drivers in K-12 learning environments today, and how Ethernet can support growing connectivity requirements in the modern classroom.

Ninety-eight percent of administrators and IT representatives said the future of K-12 education hinges on ubiquitous connectivity.

– Center for Digital Education survey¹

THE DRIVERS FOR DIGITAL LEARNING

As the digital classroom evolves and educational environments continue to reinvent themselves, many schools have been stuck with infrastructures constrained by inadequate bandwidth and not enough connectivity to support growing trends—such as students connecting their own devices to school networks and online learning. In fact, the reality is that fewer than 40 percent of America’s schools have the bandwidth they need to teach using today’s technology.² Even so, educators are well aware that these trends not only open the door to new learning opportunities, they can also facilitate access to content—anytime, anywhere.

Digital tools enhance the educational landscape through:

- **Enriched teacher curriculums**, which today often include streaming video and multimedia
- **Better teacher-student collaboration**, using online cloud tools that allow students and teachers to share notes and assignments online, edit them in real time, and project them on a screen
- **Unimpeded distance learning**, facilitated by the cloud, so students can view offsite lectures, engage in class-to-class discussions, submit assignments and access their grades remotely
- **Expedited teacher-to-teacher communication**, with online tools that allow them to instantly share videos, lesson plans and images—even with colleagues around the world
- **Enhanced communications with parents**, making grades and teacher comments available 24/7, and keeping them apprised of student progress or issues

In many cases, these innovations are already in place. One recent survey revealed 87 percent of schools conduct online testing and assessments, and 80 percent use online learning tools. In addition, 73 percent use streaming video in their classrooms, and 62 percent support students bringing their own devices (BYOD) or 1:1 computing initiatives.³

A digital divide persists between those with and without access to ultra high-speed and high-quality Internet. This not only affects students’ learning opportunities, but also stymies pedagogical innovation, digital learning scaling and data-driven decision making.

– *New Media Centers and Internet2 report⁴*

COMMON CORE DRIVES COMMON DIGITAL OBJECTIVES

Adding to the digital race in education are mandates like CCSS, with goals and objectives designed to unify key minimum requirements of what American students are learning in K-12 environments. (Full compliance was required by 2015.) CCSS requires simultaneous on-line student assessments, which can include high-definition videos and/or sound files. Depending on the number of tests being administered, this can put a great demand on bandwidth.

Other pressing challenges include the White House ConnectED Initiative, designed to connect 99 percent of K-12 schools via high-speed networking, increase use of funds and resources for high-speed educational applications, and improve teacher training by 2018. Added to that is the U.S. Department of Education's Future Ready initiative, which calls on superintendents and other education stakeholders to transition to digital instruction.⁴ Bottom line: If schools aren't prepared to support a digital environment now, they certainly will need to be in the near future. And of course, much of this support rests on the shoulders of IT professionals.

Forty-two percent of school officials said their network services are too slow, while a similar percentage said they lack network capacity to accommodate growing digital needs.

– Center for Digital Education survey¹



WHY ETHERNET FOR EDUCATION?

To remain competitive in the digital-learning world, K-12 schools are developing ways to share educational content throughout the district over high-speed networks. Ethernet is often the right choice for schools, connecting them for district-wide communication, as well as enabling seamless delivery of data-intensive content like e-textbooks, video and distance learning.

In addition, Ethernet offers the flexibility to scale bandwidth to support fluctuating demand. Ethernet services can also be cost-effective by connecting multiple schools to a hub location for centralized Internet and voice connections. For cost reduction, schools in many cases can tap into E-rate, the federally funded program that provides discounts to schools and libraries to defray the costs of deploying communications and Internet services. School districts may also be buoyed by the fact that in the last five years, the FCC released sweeping changes to the E-rate program, including focusing investment on broadband and wireless networking, as well as simplifying the application process.⁴

Ethernet can also enable schools to move data storage and applications to cloud-based servers without sacrificing user performance. Avoiding disruptions, especially during testing, is critical, since an interrupted test is usually considered null and void.



ETHERNET ENABLES CONTENT CONTROL

In perhaps no other environment is it more imperative to maintain control over content than in schools. Compliance with the Children's Internet Protection Act (CIPA), which requires schools to have an Internet safety policy that blocks or filters access to inappropriate content, is mandatory to qualify for the E-rate program.

Ethernet connectivity delivers a network architecture that enables the centralized management of important functions like content filtering and Internet security, so students are able to access the content they need without compromising the educational environment.

COMCAST BUSINESS ETHERNET: CONNECTIVITY FOR DIGITAL EDUCATION INITIATIVES

There's no question that educational environments are becoming ever more digital. In fact, on average, schools are boosting their network bandwidth by about 40 percent every year.⁵ The clear advantages in exposing students to broader amounts of rich content, and the flexibility to access it anywhere, make support for digital learning crucial to providing a rich learning environment. To meet these requirements—and help IT professionals move their educational environments into the future—choosing the right connectivity option for your school is critical. Ethernet connectivity delivers tremendous value in providing the flexibility, security, scalability and managed costs required by modern K-12 schools.

Comcast Business provides the Ethernet offerings IT professionals need to support a rich and reliable digital learning environment, delivering:



High-performance networking through an enhanced fiber optic network



Scalability, with bandwidth speeds up to 10Gbps



Security, with centralized management of important functions like content filtering and Internet security



Flexibility, with options to meet different application performance requirements



Managed costs, with easy ways to expand as your budget permits



Superior service, with 24/7 business-class support from an experienced, dedicated account team of technical and service specialists, and 24/7 monitoring through our network operations center

Comcast Ethernet options include:

- **Ethernet Private Line** for site-to-site connectivity
- **Ethernet Virtual Private Line** for hub-and-spoke configurations
- **Ethernet Network Service** for any-to-any configurations
- **Ethernet Dedicated Internet** for secure, dedicated connections

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ABOUT COMCAST BUSINESS

Comcast Business is a trusted technology provider, offering a single-source solution for education environments. As a leading provider of business Internet, phone and TV, Comcast Business offers a full portfolio of Ethernet services for education IT professionals to support digital learning environments.

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