

Modernizing IT to drive K-12 digital transformation

Meet evolving school district challenges with
the right network infrastructure



As K-12 leaders prepare for a future beyond the pandemic, innovation will play a critical role. The emergence of COVID-19 has accelerated key changes that were already taking place in schools around the world, and now there's no going back to the way things were before.

Not only will many schools continue to offer remote and hybrid learning options for students once the pandemic is over,¹ but the skills and confidence that educators have developed in teaching with technology have them well positioned for further edtech advancements.

“The shift to remote e-learning has changed beliefs and attitudes about the value of technology within instruction,” says the nonprofit research group Project Tomorrow. “These changed beliefs and attitudes provide an optimum climate for education leaders to advance long-stymied ideas about transformation in education and to think constructively about how to leverage digital tools and resources to build new learning environments.”²

This type of innovation isn't possible without a modern network infrastructure that maximizes the value of IT, reduces operating costs and supports secure, high-speed connectivity. However, modernizing IT infrastructure brings many challenges. A survey of business executives by IDG Research Services found that 41 percent had delayed or abandoned IT modernization initiatives within the last year. The top reasons included: competing priorities, lack of a clear roadmap/strategy, data privacy/security concerns, lack of skills/expertise or lack of budget.³

This white paper takes a closer look at why it's important for K-12 school systems to modernize their IT infrastructure and what that entails. It also examines the biggest challenges to network modernization and how a managed approach can solve these challenges.



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Why modernize

The world today's students will face when they graduate is very different from the one just a decade ago. Rapid advancements in technology were transforming the nature of work even before the pandemic began — and COVID has only hastened this trend. In a recent survey, two-thirds of company executives said they were stepping up investment in automation and artificial intelligence either somewhat or significantly during the pandemic.⁴

To prepare for the jobs of the future, students must learn essential technology skills, as well as 21st century competencies such as communication, collaboration, creativity and critical thinking. The “sage on the stage” model of instruction isn't sufficient for helping students learn these foundational skills; instead, students need hands-on, technology-driven learning environments in which they take charge of their own learning by creating, collaborating, constructing and sharing new knowledge.

For more than two decades, visionary K-12 leaders have been touting a future of “anytime, anywhere” learning in which students can learn from wherever they are, aided by powerful technologies. The pandemic has made this vision a reality, while opening up new possibilities for students who can't attend school in person. In shifting to remote learning, educators have found that some students are learning more effectively with this model.⁵ School systems should be prepared to support new learning environments in which students have a choice of attending live instruction either in person or online.

In a growing number of schools, adaptive learning software helps personalize education by targeting the instruction to students' precise learning needs. Augmented and virtual reality tools enhance students' understanding of key topics by bringing abstract concepts to life and transporting students to places they could never visit physically. These emerging technologies will continue to play a greater role in K-12 instruction moving forward; in fact, 54 percent of IT leaders believe augmented reality will have a “significant” or “transformational” impact on teaching and learning within the next five years — and 52 percent say the same thing about virtual reality.⁶

A modern IT infrastructure is essential for supporting K-12 digital transformation. Outdated IT systems make it hard for students to connect with modern technologies and for software to integrate seamlessly throughout the district.

Besides enhancing K-12 teaching and learning, IT modernization is critical for streamlining operations and reducing expenses. For example, smart building infrastructure can help school systems save on energy costs — and automation can reduce labor costs. These measures can play a significant role in reducing the budgetary pressures schools will face as the economy recovers from the global pandemic.

IT modernization is also an important cost-cutting strategy in its own right. Legacy IT systems are not only expensive and hard to maintain; they're costing school systems in other ways as well. Unsupported systems that can't be properly secured expose schools to the risk of cyberattacks — and the average cost of a data breach in education is \$3.9 million.⁷ In the IDG survey, 60 percent of respondents said they've seen measurable improvements in cost efficiency from modernizing IT systems.⁸

Key elements of IT modernization

When modernizing IT systems, K-12 leaders should consider the full range of IT infrastructure necessary to keep pace with student and staff expectations and support future innovations. This includes:

Dependable connections. Modern teaching and learning initiatives require exceptional network performance and reliability. School systems must plan for uninterrupted internet access for essential applications. Redundant fiber connections are important safeguards for failsafe connectivity.

The network services that schools deploy must be able to scale easily to accommodate future growth. With live video and other bandwidth-intensive applications becoming more common, network technicians should be able to optimize and prioritize the fast-growing volume of traffic. IT teams need platforms that make it simple to manage updates and configuration settings for routers across the district.

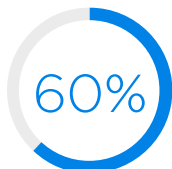
Security solutions. Legacy firewalls are no longer sufficient. According to one recent report, cyberattacks against K-12 schools rose by 18 percent in 2020.¹⁰ With the emergence of remote learning and working as a result of the pandemic, the attack surface has only grown.

Modern network architecture requires flexible security solutions that can meet the unique risk profile of your school system. A trusted solutions provider can create the right combination of on-site hardware, unified threat management (UTM) and DDoS protection that meets your needs.

Cloud connectivity. School districts have steadily moved applications to the cloud for simpler remote access, greater interoperability and more efficient workflows across school locations. School systems can increase the speed and reliability of cloud-based applications with a high-performing and private connection between their organization and cloud service providers, bypassing the public internet for superior performance and security.

Modern networking. New turnkey solutions for routing, switching and other network architecture make deployment and configuration of network services fast, simple and easy to manage from the cloud using software-defined networking and other technologies.

Ubiquitous WiFi. Students and staff alike rely on seamless wireless access to keep them connected throughout the building. To support this requirement, your WiFi infrastructure should connect users in the most efficient way possible, reducing congestion and optimizing network performance. Modern WiFi infrastructure can self-optimize performance in high-density locations, balance the load evenly among multiple access points and ensure uninterrupted service with seamless failover capabilities if a controller or access point should fail.



of organizations have seen greater cost efficiency from modernizing IT.⁹



Challenges to overcome

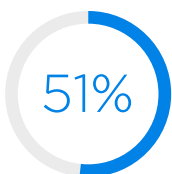
Updating legacy IT systems can be difficult, as the IDG survey suggests. Here are some of the main pitfalls that organizations encounter when they try to modernize their IT infrastructure.

Staff capacity. K-12 technology departments already grapple with IT staffing challenges. As a result, many IT employees are stretched to their limits just maintaining and supporting their existing technology systems. According to the Consortium for School Networking (CoSN), more than half of districts (51 percent) struggle to implement new technologies because their IT departments are stretched thin.¹¹

Switching out legacy systems for new technologies involves several hours of installation, testing, configuration and training. These tasks create an additional workload that simply isn't realistic for many school systems to take on for themselves. What's more, K-12 IT departments might lack the skills and expertise necessary to complete these tasks. In the IDG survey, lack of skills or expertise was one of the biggest barriers to IT modernization among organizations, cited by 38 percent of executives.¹²

Budgets. Modernizing IT infrastructure traditionally has required a large capital outlay. With K-12 budgets already squeezed from the effects of the pandemic,¹⁴ making a significant upfront investment in new technologies might not be possible for many districts.

Even before the pandemic emerged, K-12 IT leaders cited budget constraints and a lack of resources as their biggest challenge to implementing new technologies.¹⁵ School systems aren't unique in this respect; budget concerns are a leading barrier to IT modernization among for-profit enterprises, mentioned by 30 percent of executives in the IDG survey.¹⁶



of school districts struggle to implement new technologies because their IT departments are stretched too thin.¹³

How managed services can help

Managed IT services address these key modernization challenges. With managed services, K-12 schools no longer have to purchase and maintain their own IT infrastructure. Instead, they can choose IT solutions that are fully owned, installed and managed by a trusted service provider.

Managed services directly solve the problem of staff capacity. By offloading hardware installation, system configuration, maintenance, updates and network administration to an experienced partner, K-12 IT teams don't have to worry about whether they have the expertise on staff to handle these tasks and they can focus their time and effort on supporting students and teachers more effectively.

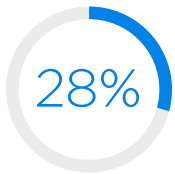
Managed services also make budgeting for IT modernization simpler. Instead of incurring a large up-front expense for new technology, school systems pay a fixed monthly rate for managed services. This ongoing charge includes all maintenance and support, so there are no costly surprises if any equipment should malfunction.

Here are three additional benefits of choosing a managed approach to modernizing IT infrastructure:

Flexibility. When you buy your own equipment, you're investing in a specific network infrastructure with a fixed capacity. If your needs change faster than you anticipated, or if you underestimated the demands on your network, you're stuck until you have the additional capital needed for enhancements. In contrast, a managed solution lets you easily add more capacity as necessary. It also gives you the assurance that as technology evolves, you'll have access to the latest innovations.

Reliability. When you own your IT infrastructure, you're responsible for all maintenance and repairs. How might this affect the reliability of IT services? With a managed solution, you have the peace of mind that comes from having service-level agreements (SLAs) in place guaranteeing network uptime and a fast resolution to any problems that occur.

Security. Cybersecurity is the No. 1 technology priority of K-12 IT leaders.¹⁸ When you purchase and install your own network infrastructure, you're also accountable for implementing patches and upgrades to keep these systems secure. With managed services, security patches and firmware changes are installed for you to keep your systems up to date.



of K-12 school districts outsource their network maintenance.¹⁷



A trusted provider is critical

When looking for a partner, your choice of service provider matters. You want a company that not only offers innovative technology but is fully invested in your success. The right partner can help you at every step in your project, ensuring the success of your IT modernization initiative.

Spectrum Enterprise empowers school systems to transform the student experience with industry-leading networking, voice, TV and managed services solutions. Our dedicated education IT experts serve hundreds of K-12 school systems nationwide with a network engineered for exceptional performance, end-to-end accountability and 24/7/365 support.

Discover how Spectrum Enterprise can help you modernize your IT infrastructure.

[Learn more](#)

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About Spectrum Enterprise

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