K-12 districts no longer have to spend time, money, and bandwidth maintaining their own technology hardware. By offloading this labor-intensive job to the cloud, districts are saving as much as 20 to 30 percent or more as well as improving teaching and learning.

By Ellen Ullman
INTRODUCTION

Like banks, corporations, and universities before them, K-12 school districts are turning to cloud services as a key component of their IT strategy. Today, 95 percent of K-12 districts rely on some form of cloud technology for storage, productivity suites, cafeteria payments, and other functions, according to a 2013 report from Fordham Law School.¹ Large school districts have seen the educational and economic benefits of cloud computing in recent years, such as reduced IT operating costs, with some K-12 leaders noting that they expect to save as much as 20 percent on their IT budget within one year.

Using a cloud-based approach, rather than using on-premises servers, can enhance efficiencies, provide greater flexibility, strengthen security, and cut such costs as hardware investments and personnel. Having IT services hosted in the cloud allows K-12 IT leaders to outsource services and better concentrate on providing students, teachers, administrators, and staff with the learning and collaborative tools and quick access to secure information to help them succeed.

And even smaller districts can also find benefit from cloud computing, with their distinct challenges of scant IT staff and resources.

About the Author

Ellen Ullman is the editor of SchoolCIO.com, which provides high-quality ideas, strategies, and resources for senior-level technology leaders in K-12 school districts. Ullman has been a magazine writer and editor since 1987 and previously worked at Working Woman, Small Business Computing and FamilyPC. In 2003, she began reporting exclusively on K-12 and higher ed technology.

¹ Privacy and Cloud Computing in Public Schools, 2013 (http://ir.lawnet.fordham.edu/clip/2/)
More school districts are turning to the cloud not just because of its financial benefits but also because of how it helps with teaching and learning (see Figure 1). Cloud computing can transform K-12 teaching and learning by expanding access to information and the processes that can improve teaching efficiency and students’ learning and performance. There are multiple benefits:

• Improved school-to-home communication. Through access to certain information stored in the cloud, teachers can have better communication with parents and students when it comes to projects, tests and assignments. Teachers can post messages. Parents can log in to secure servers to check their child’s progress and online cloud forums allow for two-way school-to-home dialogues.
• Easy access. Just about anything digital that you use in teaching can be uploaded, stored and accessed anytime, from lesson plans and lab notes to grades and PowerPoint presentations.
• Peer-to-peer collaboration. Because the cloud allows multiple users to work on and edit documents at the same time, it provides sharing and collaboration of ideas whether at school, home or in another Internet-accessible location. Student group projects or teacher collaboration on lesson plans can be enhanced for both groups.
• Time and resource efficiency. By storing content online, teachers no longer need to spend time and resources printing or copying long documents or lesson plans. The cloud allows online access to digital materials: lesson notes, homework assignments, and more.

Figure 1: A wide variety of industries that have embraced a cloud strategy are enjoying numerous benefits.

Technology trends: driving cloud adoption

Cloud Trend: 70% of CIOs will embrace a cloud-first strategy in 2016

(IDC CIO Agenda webinar)
While there isn’t one fail-safe solution to protecting and recovering data, using cloud services ensures that student records are secure and accessible, no matter what happens to a school or district building.

Cloud providers offer offsite storage and backup and can recover data quickly or handle any technical issues that may happen.

Cloud computing also provides K-12 schools with the ability to improve communication between teachers, parents and students. Through K-12 cloud platforms, teachers can have real-time communication to keep parents informed or with students around assignments, tests, projects and more. Plus, the cloud allows teachers to keep an archive of completed student work in one location. In some districts, parents can log in to the schools’ site to learn about their child’s progress in school, important school updates and more, such as grades, attendance or even if a school bus is running late.

Texans Can Academies, one of the largest charter districts in the state, is using cloud technology to streamline and improve communication among district leaders to provide better learning opportunities for students. These include a system of dashboards for use by school board members, district leaders, school administrators and teachers to provide a consolidated view of every student and every subject. “We are able to know, based on attendance, test scores, and other factors, if a student will be in trouble before it’s too late for us to intervene,” says Andy Pulianda, chief information officer of TCA. “The cloud allows us to weave information from various databases into one place and see, at a glance, what is happening.”
cost savings

Cloud computing is a great option for businesses, organizations, and education because it offers an economic incentive by allowing IT directors to substitute automation for manual effort. In fact, industry estimates have found that using cloud technology can be up to five times less expensive than maintaining servers for data storage, printers and copiers on-premises.

Using a cloud-based service is less expensive than installing physical hardware. Since cloud-based software is not stored on in-house servers, that means it isn’t directly managed by the district’s IT staff. That burden is on the service provider, which frees up a district’s staff to focus on other matters. The cloud also helps districts take a very expensive and complex project and change it from a capital expense to an operating expense, allowing for some flexibility for other budgetary expenses.

K-12 districts can roll out cloud-based applications quickly and with much less support needed from an IT staff that’s already stretched thin. In CDW’s Cloud 401 Report, more than half of respondents said their cloud implementation, from start to finish, took six weeks or less.¹ (http://cdw.com/cloud401) An additional advantage is that schools don’t need to invest in the purchasing, implementation, integration or ongoing maintenance fees associated with the traditional in-house hosting.

In a recent cloud report by CDW, 25 percent of the respondents said that one of the cloud’s biggest benefits was that it reduced IT operating costs. K-12 education leaders also said that, thanks to cloud computing, they expect a savings of 20 percent on their IT budget within one year and a savings of up to 27 percent within four years.²

For Texans Can Academies (TCA), a charter district of 11 schools throughout Texas, switching to the cloud will provide the district with a savings of 30 percent on hardware over a three-year period that the charter district would have spent on refreshing their servers and other storage devices. “If we are spending $100,000 on new hardware, because of the cloud we will get the same service for $70,000. That’s a huge advantage for us,” says Andy Pulianda, the TCA chief information officer. Districts can use the money they save to benefit teachers and students by increasing professional development, buying more devices, or even putting in additional wireless access.

Cloud services allow for a flexible virtual infrastructure without an upfront capital investment in hardware or the high costs of housing, powering, or maintaining physical servers and the connected networking infrastructure. With most cloud services, the district pays for only what it uses (in terms of storage and services), so that’s another win.

Beyond cloud computing’s ability to improve district flexibility and scalability, it also impacts how districts pay for resources. In the past, computing and data storage tasks required capital investments in hardware in order for districts to have enough processing power or needed space. Cloud computing now allows districts to buy scalable space for large amounts of data.

¹ http://cdw.com/cloud401
increased efficiency

According to the CDW report, efficiency of cloud services was cited by 55 percent of respondents, just behind cost savings, as a major benefit of using cloud-based applications.

Cloud computing is significantly more effective than using in-house data centers in part because cloud computing never runs out of space and handles load-balancing, networking issues, and software updates automatically.

Schools using cloud-based applications also end up spending much less time with implementation than they would with traditional on-site solutions because functionality is managed through a browser-based portal. With just a few clicks, all of a district’s programs and applications can be up and running. And once the applications are deployed and set up properly, that’s it: no more babysitting servers.

The cloud is also ideal for testing software before rolling it out. Rather than buying new servers to run tests, the IT departments can do load testing of new programs and applications on virtual machines that run in the cloud.

Let’s not forget about efficiency in terms of disaster recovery, either. When a district’s vital information is stored in the cloud, the IT department can customize a disaster-recovery plan that auto-saves at predetermined intervals.

scalability

Cloud service models are inherently scalable, which is key for many districts trying to save money. The ability to scale on-demand is one of the biggest advantages because it allows districts to start small and scale up as needed. Doing so is also much less cumbersome than adding on-premises equipment and installing software. IT leaders can also react faster to the district’s needs while providing greater operational efficiencies.

Thanks to the cloud’s unlimited storage, IT departments can keep up with any type of demand. During the summer, for instance, when usage might be lower than normal, you can decrease your services and run a fewer amount of machines and hence lowering cost; in the fall, you can scale up as needed.

Mark Masterson, chief information officer of Arizona’s Department of Education, handles centralized services for 650 districts across his state. As such, he can receive up to five million data transactions a day. When data comes in after 5 p.m., Masterson can scale up to as many servers as needed and process the information quickly, “You can only do that in the cloud—not with on-premises servers,” Masterson says.

Cloud storage options eliminate the stress on districts’ IT managers of having to stay on top of the ever-evolving IT landscape. As systems become more complex, the rate of software and hardware development accelerates and the number of consumer-level devices in schools skyrocket, it becomes increasingly apparent that the average school IT department can’t respond with the same level of competence and expertise as companies that specialize in these service offerings.
When considering cloud-service providers, TCA’s Pulianda selected Microsoft Azure because of Microsoft’s strong value proposition to education and because he was already using the Office suite products. All of the charter district’s servers use the Microsoft operating system, so moving to Azure was a natural choice. It didn’t hurt that Microsoft is also among just over a dozen major ed-tech cloud providers that, in 2014, pledged to safeguard the privacy of student information.4

Texans Can Academies is currently migrating all of its on-premises-based information to a cloud-based system. Pulianda notes that cloud computing has provided the charter system with a number of benefits, from the dashboard to an analytics system that allows for real-time comparisons of various metrics to differentiated professional development and improved school-to-home communication as well as secure teacher collaboration tools. “We are very excited about what Microsoft’s cloud has allowed us to do at a very affordable cost,” says Pulianda.

“If we are spending $100,000 on new hardware, because of the cloud we will get the same service for $70,000. That’s a big advantage for us. We call it ‘avoided investment’ in hardware, software, maintenance costs, consulting costs, personnel costs,” he adds. With regard to efficiency, Pulianda points out the huge savings in the time he spends using the Azure for monitoring, backup, and recovery. “With Azure’s login console I just click and drag and drop and it’s done. What took hours now takes minutes,” he says.


selecting a cloud provider

THE CASE FOR CLOUD COMPUTING IN K12

6 things to consider before you move to the cloud

Moving to the cloud from on-premises servers doesn’t have to mean a major transition for schools. Because of the scalability of the cloud, K-12 districts can start small and scale up as needed. Implementing cloud services does require some necessary planning on a school or district’s part to ensure a smooth transition and managing expectations. Some recommendations to ensure a successful cloud deployment include:

1 Have a realistic deployment plan and be sure the IT staff is properly trained in all areas and phases of rollout.

2 Identify what you will move to the cloud: data, applications, IT infrastructure, or all of the above.

3 Have a rollback plan ready as backup during the migration in order to recover data.

4 Ask for help when you need it or don’t understand what’s happening in the process.

5 Do your due diligence. Look into security, safety, uptime, costs, and more to identify appropriate vendors. Survey other like-size districts to get their take on the process.

6 Be sure you fully understand the costs connected to planning, integrating, and migrating to the cloud.
Microsoft’s Azure cloud helps districts optimize their time, cost, and infrastructure to improve services in several ways.

Cost savings. Get the software, infrastructure, or platforms your institution needs, all as a cost-effective cloud service.

Flexibility. Microsoft offers the flexibility to deploy services in a private cloud, through on-premises servers, with Azure public cloud, or with a combination of these.

Reduces total cost of ownership. On-demand data centers from Microsoft and partners can help put virtually unlimited computing power in the hands of even the smallest education institution to increase data capacity without compromising security or having to invest in costly IT infrastructure.

Available services you know. Across a variety of devices, users can have a familiar experience with Microsoft Office 365, Microsoft Exchange Hosted Services, Microsoft Dynamics CRM Online, and Microsoft Office Web Apps. Azure Active Directory allows a simplified identity experience by enabling single sign-on into these services and many more.

Conclusion

From saving money to running operations more efficiently, the true value of the cloud is making its presence known to K-12 administrators and technology leaders across the country. Cloud computing provides an enormous opportunity for schools to harness powerful technology and enhance the learning environment, all while helping to increase security and reduce stress on IT managers.
about Microsoft

At Microsoft, we are committed to helping students and educators throughout the world realize their full potential. We believe technology has the power to inspire and motivate students to learn, and the ability to empower teachers to prepare students. By working with schools and key partners in the education industry, we are driven to deliver on this belief. We also recognize technology alone is not the answer and that teachers are central to helping students succeed. That is why we have invested over $750 million and countless hours to train teachers, provide them with professional development opportunities, and connect them with each other to inspire change in the classroom. From device to advice, we are committed to education and to ensuring both students and educators have the tools they need to succeed.

about Tech & Learning

For over three decades, Tech & Learning has remained the premier publication and leading resource for education technology professionals responsible for implementing and purchasing technology products in K-12 districts and schools. Our team of award-winning editors and an advisory board of top industry experts provide an inside look at issues, trends, products, and strategies pertinent to the role of all educators—including state-level education decision makers, superintendents, principals, technology coordinators, and lead teachers. For more information, visit techlearning.com.