

THE CENTER FOR DIGITAL EDUCATION'S

# converge

re:thinkedu

Q1 2016

## Inside:

Transforming college campuses inside and out

We've seen the future, and it's blended

Why integration standards are the key to putting the cloud to work

### DR. ANGELIQUE NEDVED

shares Lawrence Public Schools' success with blended learning

# The Cloud Goes to SCHOOL

How hosted services are bringing new curriculum, capability and efficiency to K-20



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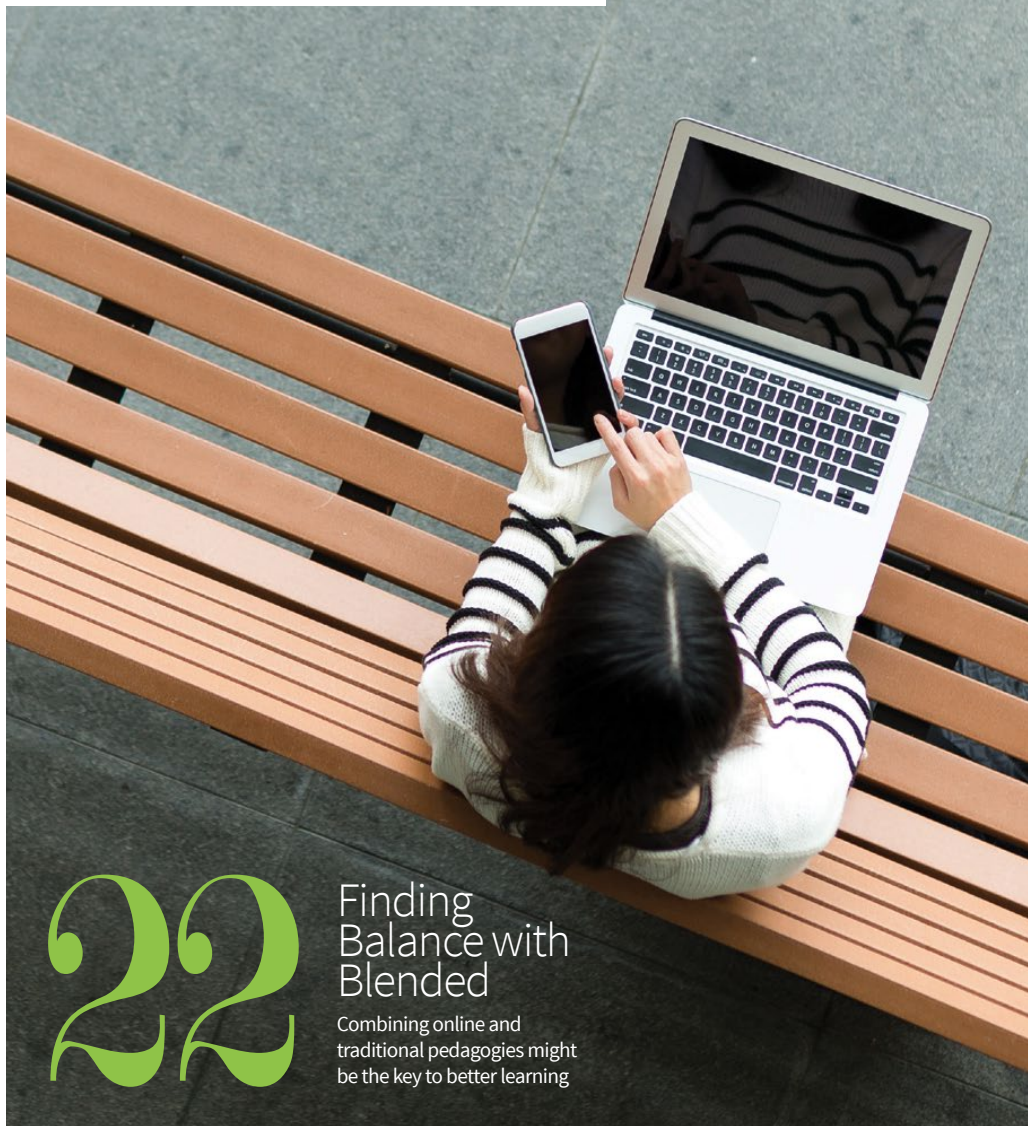
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Since becoming executive director of the Center for Digital Education last summer, I've been on a mission to bring back *Converge*. Founded in the late 1990s, the magazine was filled with stories about integrating technology into the classroom in new and unique ways. It was edgy, innovative and ahead of its time.

Now — with the growth of blended learning, need for rich digital content and availability of revolutionary technologies like cloud computing — it's more important than ever to lead a conversation around the digital transformation of education. That's our intent, starting with this first issue of the reborn *Converge*.

As an educator, I know first-hand the impact this publication can have. I discovered *Converge* when I was a middle school science teacher and an adjunct professor of computer science. I distinctly remember thinking, "This is what I want to do in my classroom." It was the first magazine that made me think it was possible to have a more engaging classroom where my students could experience their highest level of achievement.

Not only did *Converge* give me confidence in my level of risk-taking, it helped shape my career. The stories I read gave me confidence to pursue new ideas. I was inspired by the amazing leaders it profiled, giving me the courage to take on some of the more challenging positions I pursued. During a time of significant change and personal evolution, *Converge* was truly a lifeline for me.

This year, the Center for Digital Education will publish four issues of *Converge* — two in print and two in digital — focused on topics with which district and university leaders are grappling. We begin with an in-depth look at the opportunities and challenges presented by cloud computing, as innovative hosted services and platforms gain wider adoption in schools and universities.

I am thrilled to bring *Converge* back. I hope it can be as big a source of inspiration for you as it has been for me.

*Dr. Kecia Ray*

**Dr. Kecia Ray**

Executive Director, Center for Digital Education

CENTER FOR  
**DIGITAL**  
EDUCATION

The Center for Digital Education is a national research and advisory institute specializing in K-12 and higher education technology trends, policy and funding. CDE advises the industry, conducts relevant research, issues white papers, and produces premier annual surveys and awards programs. CDE also hosts events for the education community. CDE's media platform includes the Center for Digital Education Special Reports, an online resource site, email newsletters, and custom publications.  
[www.centerdigitaled.com](http://www.centerdigitaled.com)



# POP QUIZ: WHAT DO YOU WANT FROM THE CLOUD?

- A** *Anytime, anywhere access to digital content. My students and staff have high expectations.*
- B** *Ease of maintenance. My IT staff is already stretched to the limit.*
- C** *Lower costs. I am (perpetually) short on capital for expensive IT investments.*
- D** *I need to roll out new applications quickly and scale up capacity when needed.*
- E** *All of the above.*

If you answered E, you're not alone. According to the Center for Digital Education's recent cloud survey, education leaders see these as the top four benefits of using cloud-based technologies.

## **Pure Storage helps education institutions reach these goals.**

Pure Storage provides flash storage solutions – a software-driven technology that is transforming IT operations through dramatic increases in performance and efficiency at lower costs. Whether you choose to leverage all-flash for your private cloud or keep your solution on-premises, Pure Storage allows you to take advantage of the speed, reliability and simplicity that make the cloud attractive.

## PURE STORAGE OFFERS:

**Anytime, anywhere access to content.** Pure Storage excels in virtualization scenarios, allowing schools to offer mobility and BYOD at scale without performance issues. All-flash enables seamless, ubiquitous access to digital learning.

**Ease of maintenance.** Pure Storage takes the headaches out of storage from the moment it comes out of the box. With the Evergreen™ Storage model, both controller hardware and software are non-disruptively upgraded with each three-year maintenance renewal. Say goodbye to forklift upgrades and the hassles that come with them.

**Lower costs.** With a low upfront price, flat annual maintenance fees and an investment that stays modern through Evergreen Storage, there is no better total cost of ownership in the storage industry. Low, predictable payments have finally arrived.

**Agility.** Pure Storage allows you to grow capacity and performance where and when they are needed, with no downtime. With automatic resource provisioning, you can add more services whenever you need to.

To learn more about Pure Storage and the customers they've served in education, visit: [www.purestorage.com/education](http://www.purestorage.com/education).





# ALL TOGETHER NOW:

Integration standards are easing the transition to cloud-based technologies for K-12



# INTER

**W**e're in the midst of a quantum leap in the way students learn and educators teach. Textbooks can be downloaded on any digital device, curriculum and classroom projects can be accessed online and mobile devices outpace pen and paper. The more districts adopt digital curriculum, and therefore the cloud, the easier it should be to personalize education.

But using the cloud to power this new learning model is more difficult than it should be — often because of challenges in making multiple cloud-based services work together.

The problem is that data stored in hosted student information systems (SISs), learning management systems

(LMSs), teaching and learning platforms (TLPs), and proprietary digital content platforms doesn't flow easily — or at all — between these applications. And without grades, assessments and content existing in one cohesive environment, teachers can't see the larger picture.

The good news: This challenge is getting easier to solve. Interoperability standards for cloud-based technology are improving, allowing digital content and technologies to better interact. These standards let systems and devices exchange, interpret and present data to an end user. Ultimately, interoperability standards will help educators seamlessly tap into rich curriculum available through cloud computing and share student data among systems.

By Camille Cole

DAVID KIDD



### Benefits of Curriculum in the Cloud

Movers and shakers in K-12 education are realizing benefits of cloud computing. The list of innovators is growing every day. What are the drivers behind this transformation? In a 2016 Center for Digital Education (CDE) survey of nearly 100 K-12 decision-makers, school leaders cited anytime, anywhere access to curriculum (90%), cost savings (64%) and ease of maintenance (64%).

Districts are implementing learner-centered instruction powered by devices and initiatives suited for their budgets and instructional goals. One-to-one (1:1) programs utilizing tablets, laptops and handheld devices provide access to multiple sources of rich learning content and shared resources 24/7. Digital textbooks provide students with up-to-date, dynamic content and save significant dollars on regular reinvestments in static paper texts.

Houston Independent School District (HISD), one of the largest school districts in the country serving more than 200,000 students, is developing digital materials accessible through a single sign-on within the district's "HUB." The district-controlled digital ecosystem provides personalized learning experiences and equitable access to the latest technology, tools and infrastructure for every student. The district is driving costs down and efficiencies up by fully engaging students and eliminating the need to purchase and manage content and services.

Chesterfield County Public Schools in Virginia outfitted middle and high school students with Chromebooks to be used at school and at home. The focus is now turning to the elementary

school level, providing Chromebooks for students in grades 2 through 5 and tablets for kindergarten through first grade. Students will have access to every application on the school portal — appropriate to their grade level — displayed on individualized student dashboards.

"This closes the digital divide and levels the playing field," says Brian Jones, the district's executive director of technology. "And though we can't specifically tie student writing achievements to Chromebooks, last year we saw double-digit increases in assessments of student writing at the middle school level and nothing else had changed." Chesterfield is scaling up cloud computing through the utilization of hosted data storage, and it reports saving money and man-hours, which are redirected toward maintaining a more reliable network.

Schools in Lawrence, Kan., provide 10,500 students with digital textbooks. "It's about access to up-to-date content and curriculum that is dynamic, relevant and personalized," says Dr. Angelique Nedved, assistant superintendent of teaching and learning for Lawrence Public Schools.

### Turbulence-Inducing Challenges

But the proliferation of hosted services increases pressure for integration. The results aren't pretty when SISs, LMSs, and curated and Web-based curriculum don't integrate. Teachers and students are forced to use multiple log-ins, causing confusion, frustration and wasted time. Teachers are concerned about reliability. Decision-makers are concerned about security and bandwidth requirements. All stakeholders are concerned about safety and privacy.

When CDE survey participants were asked what challenges their

## K-12 LEADERS WEIGH IN ON CLOUD

**50%** of K-12 CDE survey respondents said they had problems integrating cloud-based services and content into existing environments.

institutions have experienced using cloud-based technologies, nearly 50 percent of K-12 leaders said integrating cloud-based services and content into existing environments and 39 percent said integrating multiple cloud-based services. District administrators note difficulties in finding resources needed to knit together all of their systems — they struggle to manage varying agreements with software and systems vendors. "We need to have freedom to choose the best applications, and in today's environment, we're forced to choose what works with the systems we have," one CDE survey participant noted.

### Integration Standards: A Step Forward

Fortunately, the models for integrating cloud-based systems

**Houston Independent School District's "HUB"** is a platform that houses digital materials accessible through a single sign-on. HUB will eventually become the center of collaboration, personalization, curriculum, instruction and communication for all HISD staff, students and parents.







39%

said it was difficult to integrate multiple cloud-based services.

K-12

schools use storage-as-a-service (59%) and software-as-a-service (51%) solutions the most.

72%

of K-12 CDE survey respondents house digital education resources and content in the cloud.

and content are taking shape. Standards organizations such as IMS Global Learning Consortium and Ed-Fi Alliance have made great strides in the past few years to provide frameworks for strategic alignments between curriculum and information technologies. Their standards are open and free, and anybody can take advantage of that.

IMS Global Learning Consortium, a nonprofit alliance of education institutions and education technology suppliers, provides a set of standards designed to foster interoperability among digital applications, platforms and content systems. The Common Cartridge (CC) standard supports distributed learning environments. Question & Test Interoperability (QTI) allows sharing of assessment items and systems. And Learning

Tools Interoperability (LTI) is a set of specifications that integrate Web-based instructional tools with LMSs.

The Ed-Fi Alliance, launched with funding from the Michael and Susan Dell Foundation, provides a set of standards and technology components for interoperability, building a secure bridge between disparate data systems within a school district, including environmental data, enrollment data, longitudinal interaction data and educational context data. Ed-Fi Alliance teacher dashboards display results of student interactions with digital tools and mastery over time, along with enrollment and school scheduling information. The data is available in one place and supports teachers as they develop and implement personalized learning strategies.

However, despite progress on integration standards, confusion remains. Districts still struggle to customize data and content systems, and to provide plug-and-play environments for students and teachers.

Imagine a world where any educational entity can share information with any other — no need to shoehorn all the pieces to make them work reliably and securely; where students and teachers have seamless access to a shared pool of resources anytime, anywhere via any browser; where students have portal- or hub-based access to personalized instructional resources; and teachers have instant access to curriculum content, personalized student information and school data.

In this world of the near future, SIS data, assessment and analytics,



## 4 MUST-DOS

While many districts are looking for ways to leverage digital content and data across a number of systems from a variety of sources, those who have taken the leap agree on key criteria for successful implementation.

### 1 Take a Top-Down Approach

Any major operational shift requires leadership. When policymakers and decision-makers are at the table, it sends a positive message to stakeholders. When school boards invest in change, they are expressing confidence in districts to carry out the vision.

### 2 Welcome Participation

Prior to implementing a district-wide 1:1 Chromebook initiative, Chesterfield County Public Schools invested time meeting individually with teachers and held district meetings with curriculum, teaching, administrative and IT staff to talk about the plan. The district also hosted community engagement meetings and hired a firm to conduct

community research. After the roll-out, Camp Chromebook helped parents understand how their children would be using the devices and learn how to use the devices themselves.

### 3 Teach the Teachers

Cloud computing heralds a paradigm shift in K-12 education. Change is a process that involves rethinking and relearning how things are done. When change involves technology, it requires training in how the technology works and how it can enhance instruction. Some districts embed professional development for by employing Teachers on Special Assignment (TOSA), who have exemplary experience with digital learning to work with teachers in classrooms

and workshops. Some districts have created new positions that support the implementation process. "It's about how we can continue to provide support and reassure teachers," says Lawrence Public Schools' Nedved.

### 4 Stand Your Ground

Districts should push learning platform and content vendors to commit to delivering according to standards. Some districts, including HISD, are making standards non-negotiable and charging the vendor market with accountability throughout the RFP and contract process. Standards organizations are partnering with vendors to provide certification and publishing lists of vendors and products that meet interoperability standards. District IT leaders say this imperative will transform how they purchase digital content.

and curriculum are all connected and in one place; they are interoperable and accessible through a single authenticated sign-on. Vendors are certified under one integration standard, agnostic to on-site and cloud-based infrastructure. Students and teachers are free to choose tools without worrying if they'll talk to each other.

A big step toward a more completely integrated future came in February when IMS Global Learning Consortium and Ed-Fi Alliance announced a landmark standards partnership. Ed-Fi Alliance will collaborate with IMS Global on the IMS OneRoster™ specification. The goal is to accelerate connecting district-level to state-level systems, including assessment, learning analytics and digital credentials.

"The collaboration with IMS Global," says Troy Wheeler, president


of Ed-Fi Alliance, "extends the utility of and builds a bridge between the two standards." The partnership sends a positive signal that the market is beginning to mature, says Wheeler. "Both organizations have agreed to step forward together and commit to the work required to first create one unified approach to rostering for our collective group of stakeholders."

### What Does the Future Hold?

A shift in the way we learn and teach is happening around the globe, and we are on the brink of significant change that will affect the entire paradigm.

Standards aren't static, say IMS Global administrators; they are constantly advancing to move K-12 education toward the next generation of the digital learning environment. The new digital classroom will be

customized and individualized. Teachers will have student analytics at their fingertips and will be able to quickly and easily understand what is working and what is not. Students will have access to high-quality, personalized content and will plug and play into a self-directed learning setting. IT staff will oversee fully integrated and secure systems.

While visions for engaged student learning emerge nationwide, standards are being ironed out for the full integration of curriculum content and school data systems, forging unprecedented opportunities for teaching and learning in a cloud-based environment. 



# Why Cloud + Collaboration = Student Success

**90% of K-12 education leaders agree:<sup>1</sup> One of the biggest benefits of the cloud is anytime, anywhere access to curriculum and resources for both students and staff. But what about collaboration?**

Collaboration helps develop critical 21<sup>st</sup>-century skills and dramatically improves student engagement. Yet, while the cloud has undoubtedly opened up opportunities for blended and virtual learning, when students are not sharing a physical environment, collaboration tends to suffer. Or at least it used to.


SMART amp combines all the benefits of the cloud and fosters true collaboration. It allows students to collaborate in real time and co-create content on a digital canvas whether inside or outside the classroom, using any connected device.

Students can add or explore existing content, work individually or in small groups, and communicate with peers, all while educators monitor contributions and activity in the shared space.

SMART amp supports blended, project-based and student-led learning. It was built through extensive research, working hand in hand with educators, and as a Google for Education Partner.



To learn more and get  
a free trial of amp,  
visit: [smarttech.com/CDE](https://smarttech.com/CDE)



“If we worked  
on SMART amp  
all the time I would  
even come to school  
on Saturday and  
Sunday.”

– James, student



# PROGRESS REPORT:

## K-20 in the Cloud

Source: CDE survey of 221 K-12 and higher education leaders conducted in January 2016

Cloud is new for education,  
and it's gaining popularity.

Why you're using it

86%

Higher Ed

90%

K-12

Anytime, anywhere  
access to curriculum and  
other resources for staff  
and students is the  
**No. 1 benefit** of cloud-  
based technologies.

K-12

77%

Higher Ed

69%

use cloud-based technologies.

Only **35%** of K-20 institutions have been using  
cloud solutions for **longer than 3 years**.

What you're using

37%

of higher-ed institutions  
use a **private cloud**.

37%

of K-12 schools use  
a **hybrid cloud**.

**Software-as-a-service** and **storage-as-a-service** are the two most popular hosted  
services across K-12 and higher education.





## You're feeling better about security

34%

of K-20 respondents said **firewall upgrades** are the most popular way to address cloud security concerns.

Nearly  
50%

of K-20 respondents said they **do not have an unaddressed security concern** related to the cloud.

## But there are still barriers

26%  
Higher Ed

47%  
K-12

Budget constraints are the top barrier to cloud adoption.

Email, digital education resources and documents are the three most commonly stored and operated items in the cloud for K-20 institutions.

Documents and records

52%

Higher Ed

65%  
K-12

Digital education resources or curriculum

55%

Higher Ed

72%  
K-12

Email

63%

Higher Ed

76%  
K-12







*Hosted services  
are transforming  
the business of  
running a campus  
and giving  
students what  
they want*

***By Diwata Fonte***

# HARDWARE'S DISAPPEARING

# ACT

In the spring quarter of 2013, the learning management system at California State University, San Bernardino (CSUSB) suffered a major outage at perhaps the worst possible time — finals week.

"This is something that we will never stop hearing about," says Gerard Au, CSUSB associate vice president for information technology services. "Students graduating four years from now will still remember that experience. That was the straw that broke the camel's back."

The incident drove CSUSB to accelerate the transition of its major systems to the cloud. The campus went from having almost no critical systems in the cloud in 2013 to 60 percent today, Au says. Hosted services at the university now include many parts of its enterprise resource planning (ERP) system, campus portal, learning management system (LMS) and email systems.

As a result, CSUSB can provide 24/7 availability for major systems, refocus IT resources and provide other benefits such as business continuity in case of disasters like earthquakes caused by the nearby San Andreas Fault.

"It keeps us operational regardless of what is happening on our campus," Au says.

**W**hile CSUSB is far from the only campus to experience a high-profile

outage, the aggressive timeline of its transition drives home the point that many colleges are looking to the cloud to solve their problems and even gain a competitive edge.

According to a 2016 Center for Digital Education (CDE) survey of 129 higher education leaders conducted in January 2016, 69 percent of higher education institutions use a cloud-based solution and 39 percent have used cloud solutions for more than 3 years.

The top reasons higher education leaders pursue cloud solutions include anytime, anywhere access, ease of maintenance, reduced hardware and maintenance costs, built-in disaster recovery and simplified IT administration. Leaders also noted cost was their primary reason for not moving to the cloud, while only 4 percent of respondents cited lack of interest or perceived need. Although higher education institutions have had legitimate reasons — such as privacy and security — to hesitate before adopting cloud solutions in the past, those concerns are fading.

To get an idea of how fast cloud solutions have gained momentum, consider the contrast between two large Midwest institutions: Indiana University Bloomington and the University of Notre Dame. When Indiana replaced its aging data center in 2008, it opted to build another on-site facility. Notre Dame, facing the same need just a few years later, transitioned the bulk of its IT infrastructure to the cloud.

"We are a study in contrasts," says Bob Flynn, manager of cloud technology support at Indiana University Bloomington. "The obvious choice for us was to build a state-of-the-art data center, and three or four years later the obvious choice for Notre Dame was to move 80 percent of its infrastructure to the cloud."

**B**eing able to devote more resources to academic and student success is one of the most exciting and satisfying gains of moving to the cloud.

Adopting hosted services can translate to fewer mundane and time-consuming IT job duties, including performing routine upgrades. As a result, higher education IT staff can focus on industry-specific projects, including analyzing the mounting academic data that each system collects.

"If I had to make the trade again, I'd make it every day," says George Claffey, CIO of Charter Oak State College and the interim CIO of Western Connecticut State University. "Windows patches are necessary and needed things and they're absorbing days and weeks of system administrator time. When we can put those admins on other projects like homework tracking or early intervention, that's where we've really done right by the students."

Campuses also are using the cloud to cut overhead costs and react to changing technology and teaching needs. For

## CLOUD'S RAPID RISE

Indiana University Bloomington opted to build another on-site facility when it replaced its aging data center in 2008.

Just a few years later, the University of Notre Dame found itself in the same position, but the obvious choice was to move 80 percent of its infrastructure to the cloud.





“Windows patches are necessary and needed things and they’re absorbing days and weeks of system administrator time.”

example, Western Connecticut State University recently launched an innovation and entrepreneurship center. Technology is part of the center’s infrastructure, but instead of owning equipment with a five-year life cycle, IT can blend physical technology with cloud-based technology. With the ability to scale as needed, cloud-based technologies save the university money and ensure students have a relevant tool set, Claffey says.

The cloud is helping Florida’s Lynn University get creative, too, enabling the Boca Raton-based campus to replace its traditional on-premises LMS with a more innovative option. For the past three years, Lynn has provided iPads to all students and delivered content through iTunes U. Recently, the university worked

with a local company to add a cloud-based grading and attendance application, which feeds into its cloud-based customer relationship management system, or CRM.

“We’re using mobility and cloud to help us move data out of legacy systems, which is great,” says Christian Boniforti, Lynn University’s CIO. “And I think the flexibility of mobile and cloud allows us to bring in new feature functionalities in a more rapid and affordable way.”

The ability to launch useful new features quickly helps increase faculty participation rates, which ultimately leads to better results.

“Once you get better participation, you can start really using the data to personalize learning, make interventions, reach out to students

and hopefully help guide them a little bit better throughout the college experience,” Boniforti says.

Just as important, the shift to cloud and mobile provides students with tools that match their experience in the real world. For the current generation, that means helping students bridge the gap between using these tools in their personal lives and using them in the workplace, Boniforti says. For future generations, it means matching the technology experience they received in lower grades where mobile and cloud solutions will be as entrenched in the learning environment as textbooks were 10 years ago.

“The students of tomorrow are going to expect that those things are in place,” says Boniforti. “They’re going to be using them in high school



and middle school and know what to do with them. The expectation is that their transition needs to be seamless and the tech needs to get out of the way.”

Campus IT professionals already are struggling with the sea change in student expectations. Students bring consumer devices to campus the day they are released, and they expect to see those same innovations used throughout the college experience — in and out of the classroom.

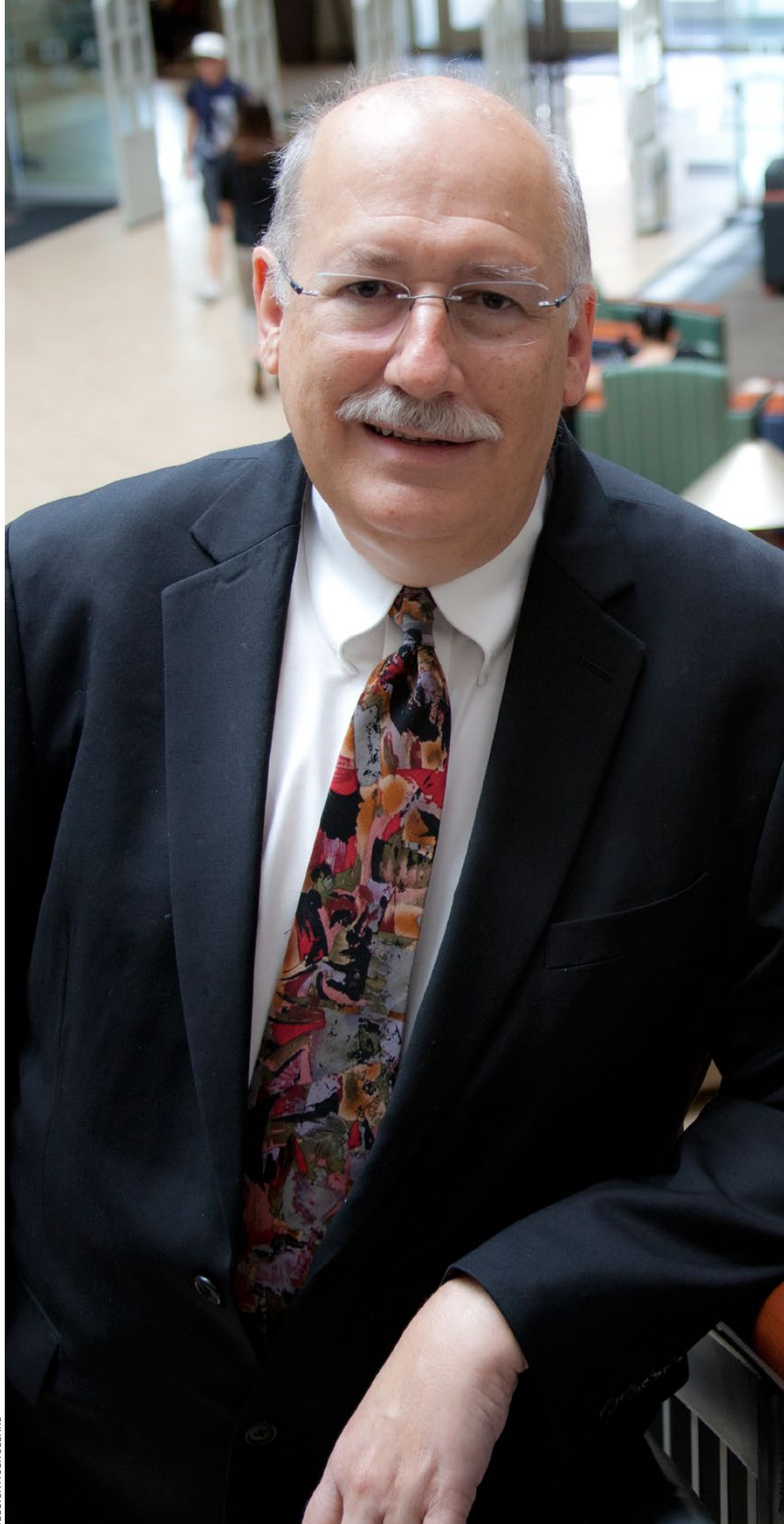
“They are definitely coming with high expectations due to what they’re used to at home or school. That’s their vision of what every college should be providing right out of the box,” says Kevin Brassard, CIO at Nichols College in Massachusetts.

Cloud-based solutions help colleges keep up with rising expectations without scrapping core systems they are not ready to replace. They can be seen throughout the universities, from recruitment applications that replace direct mail with social media to apps that focus on alumni engagement. These apps can even track the availability of campus laundry machines or count calories in campus dining halls.

Until last year, Nichols College used manual spreadsheets to assign student housing. “It didn’t sit well with students and was inefficient for resident life staff,” Brassard says.

Nichols College leaders decided it was worthwhile to adopt a cloud-based app with features more in line with student expectations, including automated roommate matching. “As students get wiser with what each college has to offer, it doesn’t reflect well on a school if they’re still doing things manually without using integrated systems,” he says.

With so many options, CIOs and tech leaders must be selective about which projects they pursue, how cloud solutions integrate with



JESSICA MULHOLLAND





**STEVEN ZINK,**  
vice chancellor  
of information  
technology at the  
Nevada System of  
Higher Education,  
sees a future in which  
real-time integration  
of data will help higher  
education make  
dynamic decisions.

existing systems and how they further campus priorities. At Lynn University, Boniforti said one goal is to become more sophisticated in how the administration communicates with students.

“They definitely don’t read email as much anymore. We’re texting versus emailing,” he says.

An upcoming cloud-based project will allow students to select their preferred method of communication. For example, students could receive an email for bills, but be texted information about their attendance.

In addition to faculty and staff email systems — a starter cloud service for many institutions — many crucial business operations and processes are being moved to the cloud.


A large-scale example of this is the Nevada System of Higher Education (NSHE), where leaders are implementing a cloud-based finance and HR system throughout the system’s eight campuses.

The project will help streamline and standardize many of the campuses’ different business processes.

“[The cloud] takes out some of the flexibility, which is actually a good thing in the business process side,” says Steven Zink, vice chancellor of information technology at NSHE.


“Campuses almost always want to do [a business process] a certain way, because that is the way they have always done it. But to achieve efficiencies you really can’t do that. True cloud computing environments excel at common business processes and it’s really too expensive for them to maintain that many instances of people running different software,” Zink says.

**A**s more institutions move services to the cloud, campus IT professionals are learning how to manage and mitigate many of the common risks and issues associated with it, such as cyber liability, security, privacy, vendor



management and data ownership. Moving to cloud-based solutions also is revolutionizing job responsibilities in many IT departments — requiring CIOs and other leaders to become more business savvy and comfortable vetting and managing vendors. Reading and negotiating contracts, which is often left to business offices for traditional hardware and software purchases, is usually performed at some level in the IT department for cloud purchases. Therefore, IT professionals are finding themselves serving as internal consultants for other university departments and user groups interested in selecting hosted services. While not everything makes sense in the cloud now, CIOs and technology leaders say systems not in the cloud will likely be considered for cloud migration on the next pass.

For Zink at NSHE, outsourcing maintenance and hardware is just one part of the cloud’s potential. He sees a future in which real-time integration of data will help higher education make dynamic decisions. With the power of real-time analytics, for example, colleges could assign classroom space based on registration and the distance a faculty member or student may need to travel between classes or even nearby campuses — much like driving apps calculate alternate routes based on traffic flow. Academic advisers could provide interventions based on how late a student regularly orders pizza.

Whether higher education uses such social data is not a technology question — it is an ethics issue, just as is the use of social data in society at large, he says. But regarding the technology, Zink says: “That’s definitely in the art of the possible.” 

# Meeting Digital Expectations

**Today's colleges and universities need to satisfy a different kind of student.** Raised on technology and social networks, these students expect highly personalized digital services in all aspects of their lives, including their college experience. What's more, they've been fed a diet of rich digital content in K-12, and they're looking for similar curriculum in college. The Center for Digital Education's annual Digital Community Colleges Survey examined how community colleges are responding.

*Source: 2015-16 Digital Community Colleges Survey, sponsored by SHI*

of community colleges provide real-time online access to academic tutoring; 97% offer students access to faculty via email, text or chat.

55%

of community colleges allow students to view, add, drop and change courses online; 57% let them do so using a mobile interface.

96%

of community colleges provide online access to official transcripts.

76%

36%

of community colleges use open education resources as part of their digital curriculum strategy.

39%

of community colleges offer laptops or tablets to students at a discounted price.

94%

of community colleges give students secure online access to financial aid status; 56% offer secure mobile access.



# Clocking in on Campus

**Student employees are an invaluable resource for colleges and universities — but managing this workforce has traditionally been complex. It doesn't have to be.**

**Nearly four out of five** college and university students have a part-time job. Students who work 10 to 15 hours, and are employed on campus, are more likely to persevere and earn degrees. However, managing this army of student employees can be a complex process for higher education institutions. Scheduling and recording hours worked is time consuming — and complying with federal and state labor laws, particularly around minimum wage and overtime when a student works multiple jobs, can be a nightmare.

Kronos helps colleges move beyond outdated paper-based operations by offering cloud-based solutions to automate time-consuming, disjointed processes — meeting student expectations for a convenient experience while streamlining staff management across every department. The Kronos suite of workforce solutions helps campus leaders improve productivity and meet student and university needs through mobility, self-service functions and real-time visibility.

## On the move

Kronos leverages the mobile devices students rely on to streamline HR and staff functions. Student employees can access schedules, edit and approve timecards, and request time off — all from a mobile device. They can also clock in by swiping a badge, logging into a computer, or scanning their finger with biometric technology at the timeclock. Geofencing capabilities ensure students don't clock in from unapproved locations.

## Increased field of vision

Managers can gain broad visibility into student employee schedules and hours worked in real time. They can even see hours worked across departments, which is especially important for students who have multiple campus jobs. With instant visibility into each student worker's schedule and history, managers can easily verify employees are not exceeding work-study hours and comply with diverse labor laws and federal mandates, such as the Fair Labor Standards Act. This insight ensures students get paid accurately and on time, including overtime, reducing the occurrence of overpayments and time spent rectifying accounting mistakes. Additionally, the Kronos suite helps streamline grant reporting as hours can be tracked by grant or project.

## Students as customers

Students today expect their college or university of choice to offer convenient solutions — and a growing number of potential students are selecting their future institution based on its technology offerings. Modernizing attendance, scheduling and timekeeping helps colleges and universities exceed these expectations.



To learn more, visit: [www.kronos.com/highereducation](http://www.kronos.com/highereducation)





# Finding BALANCE with BLEND

How combining online and  
traditional pedagogies might be  
the key to better learning



# CE DED



By Matt Villano

To call Roxburgh, New Zealand, a small town would be an understatement. It's home to a handful of stoplights, about 600 people and thousands of apple trees. No more than 175 pupils attend Roxburgh Area School at any given time.

Yet this bucolic spot in the heart of the Teviot Valley might just be at the forefront of the next big movement in education today — a push to bring online and physical pedagogies into one.

The effort at Roxburgh was born of necessity in 2014. Due to Roxburgh Area School's small population, officials were unable to staff a large range of subject choices. Using videoconferencing to offer the school's 35 seniors more choices from around the world was the logical solution. Instead of embracing this strategy as a standalone, officials decided to dovetail it with a new "Learning Centre," a physical space where students can work independently with the support of a teacher. According to Principal Gary Pasco, students usually meet online for one hour of lectures, then have three hours to work independently in the Learning Centre.

“Generally speaking, the students really like their new space and parents are supportive because they see the range of subject choices the students have,” Pasco says, noting the Centre can accommodate up to 15 students at a time. “We’re still sharpening the program, but we are operating better each year.”

The lessons from Roxburgh are clear: If applied thoughtfully, blended learning can spotlight emerging pedagogies supported by evolving technologies and improve the educational experience across the board. At the same time, with this approach to education primed to become the new normal, it’s important to ask how a move to blended learning could impact your day-to-day curriculum, and what other considerations one must make to give the strategy a chance to shine.

**Y**ou can’t have a discussion about blended learning without defining it first. Think of it as the ultimate mash-up — a true mix of early adopter virtual education and traditional desk-and-classroom pedagogy.

The approach takes the very best from the traditional face-to-face approach — one-on-one instruction with educators — and the increased efficiencies of virtual learning and mixes them into one multifaceted curriculum. On any given day of a blended curriculum, students might have face-to-face instruction with one teacher, group work with classmates, then an online lecture with a subject matter expert farther afield.

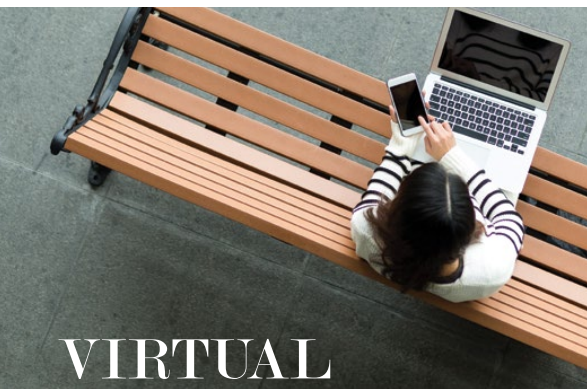
Blended learning certainly is gaining momentum. The New Media Consortium’s 2015 Horizon Reports for K-12 and higher education indicated that blended learning is “on the rise” at K-12 schools, universities and colleges, and represents a “key topic to watch” over the next two years. What’s more, a February 2015 publication funded by the Bill & Melinda Gates Foundation

reviewed 20 studies on blended learning in higher education and reported that blended instruction produced higher academic achievement than exclusively face-to-face and online courses.

At the same time, recent research suggests virtual learning on its own is not working the way experts had hoped. Perhaps the most damning evidence: An October 2015 study from the Center for Research on Education Outcomes (CREDO) at Stanford University indicated the majority of online charter students had far weaker academic growth in both math and reading compared to their traditional public school peers. To conceptualize this particular shortfall, the study said it would equate to a student losing 72 days of learning in reading and 180 days of learning in math, based on a 180-day school year.

“There’s no question things are changing,” says Michael Barbour, director of doctoral studies for the Isabelle Farrington College of Education at Sacred Heart University. Barbour has been studying changes in K-12 and higher education for more than a decade, and sits on the board of the National Education Policy Center. “One thing we can say is that the schools of tomorrow won’t look anything like the ones kids go to today.”

Lawrence Public Schools in Kansas offers a glimpse of how tomorrow is shaping up. The district launched a blended initiative in 2013 and expects to have blended learning rolled out to 400 K-12 classrooms by fall 2016. “Our implementation is now in every grade level and every core subject in our schools,” says Dr. Angelique Nedved, assistant superintendent of teaching and learning for the district. “We wanted to address student engagement differently than we had in the past and were interested in an instructional model that empowered our students to become self-advocates for their own learning style.”



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## VIRTUAL FAIL

The Online Charter School Study by CREDO at Stanford University found fully online charter school students had far weaker academic growth and were a full year behind in math compared to their traditional public school peers.



“We were interested in an instructional model that empowered our students to become self-advocates for their own learning style.”

**DR. ANGELIQUE  
NEDVED**

assistant superintendent  
of teaching and learning,  
Lawrence Public Schools





While students should become self-advocates for their own work, that doesn't mean they have the ability to self-regulate and be autonomous. Gary Miron, professor of evaluation, measurement and research at Western Michigan University, says this often is the biggest failure of virtual learning — that programs assume school-aged children have adults at home to keep them on task. One solution to this problem: School facilities that enable students to engage in virtual learning from an environment staffed with real-live educators.

"Just having people around to help students stay on task can make a huge difference in the amount of material students actually get through," says Miron, who has had extensive experience evaluating school reforms and education policies over the years.

Another helpful addition: Technology facilitators who can help students troubleshoot problems with the equipment they use to access the virtual components of their curricula. These individuals aren't content experts, but instead technology experts who exist exclusively to step in and handle any tech issues.

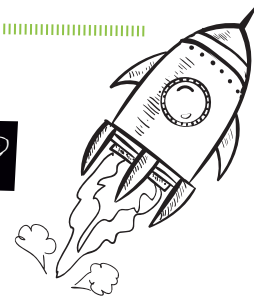
According to John Watson, CEO of the Evergreen Education Group, a consulting firm in Durango, Colo., blended learning also prompts districts and school officials to completely rethink traditional school setups. Currently, most brick-and-mortar schools require students to show up every day; however, with a blended model students might be required to go to a physical school certain days of the week, and could be assigned to work virtually on the other days.

"Whether it's staggering a schedule, team-teaching or another sign of innovation, thinking about blended learning enables you to broaden the perspective," he says.

# What will SCHOOL look like?

## 1 THE START-UP MODEL

- ✓ Flexible
- ✓ Modular furniture
- ✓ Open workspaces
- ✓ Collaborative
- ✓ Noisy



## 2 THE STARBUCKS MODEL

- ✓ Personalization
- ✓ Empowering students to build their own curriculum
- ✓ Community centers where certified teachers and students can meet

## 3 THE BACK-TO-THE- FUTURE MODEL

- ✓ Mirrors the iconic one-room schoolhouse
- ✓ Highly personalized
- ✓ Well-trained professional educator + technology tools + access to Internet for supplemental learning





**E**ducation institutions that embrace blended learning likely will have to hire educators to teach in both the physical and virtual spheres — most likely (due to financial constraints) educators who can do both will be preferred. James Woodworth, senior quantitative analyst for CREDO, says schools also must broaden their perspectives to roll out new forms of professional development, since the skill sets for teaching in classrooms and online are vastly different.

“[Online learning] is a highly specialized skill set, which current teacher prep programs do not seem to provide,” he says.

At the University of Maryland University College, which offers approximately 1,000 online courses each semester, Marie Cini, provost and senior vice president for academic affairs, notes all blended learning instructors must take a class about how to teach and engage students online.

What else works? Collaboration. Districts with successful blended learning programs have put people into mentoring and coaching roles and tasked them to work one-on-one with educators as issues arise. Nedved says districts should set aside time for teachers to discuss instructional strategy and share what’s working across grade levels and content areas. She also says flexibility is one key to success.

“If you want more authentic buy-in from staff, then be comfortable with implementation being opt-in and looking different across classrooms, buildings, grade levels or contents,” Nedved says. “Also support teachers in selecting when, where and how often they blend. We discovered this approach, in 95 percent of our classrooms, led to the teacher blending their entire day.”

The district helped teachers transition to blended by providing professional readings, models and

frameworks to help them understand the new instructional model. “Q&A panels composed of blending teachers were also one of the strongest components of our professional learning support,” Nedved adds. “Teachers sharing their stories, struggles, celebrations and needs gave us powerful insight on where we needed to make adaptations.”

Michigan Virtual University (MVU) dubs its instructors “iEducators” and requires them to participate in a one-time on-boarding program, monthly professional development sessions and weekly webinars. Each of these instructors also is assigned a mentor for additional support and collaboration. Stephanie Pearsall is an iEducator in the science and visual arts department, and says this approach has helped make her a better teacher — both online and off. “My employment with MVU has honed my relationship building and effective feedback skills,” she says. “Every day I am exposed to challenging, cultured experiences that enable growth and expertise as a professional.”

**A**n increased reliance on blended learning likely will revolutionize the way we build schools, too.

Some say Roxburgh, New Zealand’s Learning Centre model will drive entire renovations, moving schools away from classroom-based setups and closer toward environments with flexible spaces that can be configured any number of ways to facilitate interactions and group work. Watson, from Evergreen, likens this approach to common design plans at startup companies, saying the spaces often can get quite loud because of all the collaboration.

“These blended classrooms might seem chaotic compared to classrooms where everyone is sitting quietly,” he says. “Instead of 1 person talking, there are 5 or 10 different conversations


going on around the room — evidence of learning happening in a completely different way.”

Other experts predict blended learning will give way to a different philosophy driven by pop culture: a plan they call the Starbucks model.

Central to this model is the notion of personalization — the move to empower students to build an entire curriculum around what interests them most. This is the idea behind Global Personalized Academics, a new company started by Julie Young, the former executive director of Florida Virtual Schools. As Young sees it, “schools” that adhere to this philosophy will be more like community centers where certified teachers and students can meet to work on projects, take a class or any combination of the two. She adds that students likely would use this model to fill gaps in their educational histories.

Finally, in what could be considered a back-to-the-future approach, other learning gurus say they see blended learning working best in an environment that mirrors one of the most iconic educational formats in U.S. history: the one-room schoolhouse.

Joe Freidhoff, vice president of research, policy and professional learning at Michigan Virtual Learning Research Institute, speaks passionately about this subject and recently shared a blog post he wrote on the topic. In that post, he noted that while the one-room schoolhouses of yesteryear struggled from the limited skills of a single educator in a remote location, a one-room schoolhouse with a well-trained professional educator, robust technology tools and access to the Internet for supplemental learning could offer most students a highly personalized learning environment that could be globally competitive with any school, regardless of size and location.


“Perhaps the pioneers of the one-room school concept will show us another trail to thriving in the digital frontier,” he wrote. If Roxburgh is any indication, we’re already on our way. 



# Finding the **RIGHT** **CLOUD**

Ed tech leaders match cloud service models  
to data and application needs *By Tanya Roscorla*





**S**chool districts and universities have more options than ever before when deciding where their data and applications should live. The location of physical computing infrastructure is becoming less relevant as bandwidth increases and vendors expand cloud-based offerings.

Depending on the type of application and the sensitivity of the data, education institutions are adopting a mix of private clouds, where services are provided to a single organization, and public clouds, which are operated by commercial providers to serve multiple customers. In addition, they're mixing cloud-based and on-site resources to create hybrid environments.

Security requirements for the application and the data it holds are key factors in deciding on a cloud model. Education institutions may choose a private cloud for higher-security applications and select a public cloud for lower-security applications such as email. Hybrid clouds allow institutions to keep multiple applications in different places or combine the advantages of public and private clouds to serve one application.

Here's a look at some of the models in action.

#### **Private Cloud**

In 2008, concerns about protecting

student data drove a trio of Illinois school districts in Murphysboro, Bloomington and DeKalb to build a private cloud — known as the IlliniCloud — to serve themselves and a growing number of other districts in the state.

Initially offering disaster recovery, the consortium later expanded its offerings by providing infrastructure-as-a-service. Next, the group created a data portal where teachers could see dashboards with data from multiple systems. Finally, it launched federated identity solutions with the help of higher education leaders.

The latter offering stems from the IlliniCloud's participation in the Internet2 community's Quilt InCommon K-14 Identity Federation Pilots. For three years, universities helped state research and education network providers identify users once and then allow them to use their credentials across multiple systems. These pilots led to collaborations between IlliniCloud and other state network providers that continue today.

Initial funding for the IlliniCloud came from the three founding districts, along with federal grants and state and local dollars. Now the consortium generates revenue by charging districts for services they use and offering co-op memberships that vary in price depending on a district's student population. Free bandwidth from the Illinois

Century Network — a statewide broadband network for government, education and health care — helps keep costs low.

The IlliniCloud provides more than 500 districts inside and outside the state with a safe place

to house data, recover it if disaster strikes and access infrastructure they couldn't afford without the group's economies of scale. The founding school districts initially hosted the IlliniCloud from their data centers, but moved the main data center into a commercial facility in 2014.

Member institutions own and operate the data, identity and portal tools, and determine the standards. This way, they can protect student data, keep tabs on its location and answer parents' questions about how the information is used.

will use the system, which is scheduled to be complete in spring 2017.

Steven Zink, vice chancellor of information technology at NSHE, says the commercial cloud platform is updated twice a year, ensuring the university system has up-to-date functionality. Additionally, NSHE no longer needs to manage and maintain hardware and software, and it's the vendor's responsibility to scale up for periods of high user demand.

The move also is helping the university system centralize and standardize data reporting. With

decide on a case-by-case basis where each service will live to ensure they meet data security requirements, says John Cusack, network services manager for the San Diego County Office of Education, which provides services to 42 school districts, 119 charter schools and 5 community college districts in the county.

Districts and teachers are becoming more comfortable with public cloud services, thanks to popular offerings such as Microsoft's Office 365, Google Apps for Education and the Smarter Balanced Assessment Consortium's

**“Our job is to make sure that we clearly know where every piece of data and identity goes for every single student that’s under our care.”**

“Our job is to make sure that we clearly know where every piece of data and identity goes for every single student that’s under our care,” says Jim Peterson, technology director at the Bloomington district and CEO of IlliniCloud.

The founding districts' superintendents meet annually and follow the guidance of their technology leaders. An advisory board composed of representatives from the state's learning technology centers, public school districts and private schools also provides guidance.

#### Public Cloud

The eight institutions in the Nevada System of Higher Education (NSHE) are halfway through iNtegrate 2 — a project designed to standardize business processes, share resources across their campuses and collect cleaner data. The project includes moving finance, human resources and payroll systems to a cloud-based service hosted by a commercial provider. More than 11,000 employees

common data definitions, each institution can report student graduation rates the same way. This reporting process is critical because Nevada awards a percentage of state funding based on universities' graduation rates.

Nevada's adoption of commercial cloud services raised security concerns, Zink says. But major cloud vendors have a strong reputation for safeguarding client data, while individual corporations and education institutions have been frequent victims of cyberattacks.


“I don't know of any higher education institution that can provide the level of constant 24/7 security where you have essentially that much dedicated staff time to making a secure physical and virtual computing environment,” he says.

#### Hybrid Cloud

San Diego schools and the County Office of Education are poised to move some services from the private cloud to the public cloud. They'll

hosted testing service, Cusack says. That's prompting the San Diego Office of Education to shut down some of its existing private cloud services in favor of public cloud offerings. For instance, the county is retiring a private cloud service that allows school districts to access files and other resources from any location.

“We're just finding that the overhead of managing the private cloud aspect is no longer giving us the value that we were getting before,” Cusack says.

Ultimately, the county expects to operate a mix of on-site, private cloud and public cloud services — with hosting decisions based on factors such as the sensitivity of the data involved and the nature and terms of the service offering. That means student and faculty documents are definitely moving out of the county's data center, Cusack says, and SIS data is probably staying put for now. 



# Got Cloud Doubts?

Here's a little Insight.

**72%** of the Center for Digital Education's (CDE's) cloud survey respondents said they were using cloud-based solutions for email, document and records storage, digital content, learning management systems and more.

It's clear: Cloud is cool for school.

But despite the cloud's popularity, education leaders can still be cloud-shy. CDE survey respondents said their biggest roadblocks to cloud adoption are budget constraints, lack of staff to implement changes and security concerns.

Here's how Insight can help.

## We know money is tight.



More than half of K-12 school leaders say they don't have enough funding to meet the expectations of the school board and other district leaders, according to a recent study by the Consortium for School Networking (CoSN). The cloud can help solve this problem by eliminating the need for school districts to make large capital investments in new servers and refresh hardware every few years. With Insight's scalability, schools and districts can pay for only what they use.

## We know time is short.



IT staff are often bogged down with the day-to-day minutiae of keeping systems running, making it nearly impossible to find time to implement new solutions. But cloud-based programs and applications are not stored on premises, which means service providers — such as Insight — are responsible for managing and maintaining hardware, freeing staff to focus on meeting educational goals.

## We know cybersecurity keeps you up at night.

Student and data privacy is a primary concern for IT staff, educators, parents and students. This, coupled with stringent state and federal regulations, leaves districts hesitant to hand over data. Insight's cloud solutions offer easy-to-navigate administrative controls over distribution and access. Additionally, educators can store student data, such as assessment scores, in private clouds instead of on a device or USB drive, which is more vulnerable to theft.



## Insight can help.

Insight offers a variety of solutions to help schools migrate to the cloud — including options for hybrid environments.

To learn more, call **1.800.INSIGHT** or visit **[www.insight.com/education](http://www.insight.com/education)**.

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# Who Needs Hardware?

## Cloud Comes Through for Gibraltar Area Schools

**Picture this:** It's 2010, your small, cash-strapped district needs new hardware and software, and it's estimated to cost \$44,000. What do you do? If you're anything like Steve Minten, district director of IT for Gibraltar Area Schools in Wisconsin, you look for a more cost-effective, future-facing option.

In steps Amazon Web Services (AWS). By utilizing the Amazon Virtual Private Cloud (VPC), Gibraltar Area Schools has moved several key services and operations to the cloud. "I just said, 'You know what? Other schools will be doing this in another five years when they figure out they can just pay per hour on their servers — I'm going to do it now.' So, we skipped ahead of the whole hardware purchase straight to something for the future," said Minten. Over the past five years, he estimates the district has spent less than 50 percent of the initial estimated cost to replace on-premises hardware and software.

Aside from obvious cost savings, the district is moving to the cloud to reduce service disruptions. For example, the on-premises server for the student database recently went dark due to failed hardware — and Minten was unable to get the server running until mid-afternoon. The student database server is slated to migrate to the VPC soon, and had it already been part of the district's AWS structure, the scenario would have been very different: "If it had been moved, we simply would have grabbed an instance that was waiting there dormant or used our backup scenarios to bring it online rather quickly

— within 20 minutes," said Minten. "We can't have downtime that big. We're looking for more security and want to be released from the pain of hardware. With the VPC, we can fix it quickly; we don't have to deal with physical hardware or things like the temperature of the server room."

By moving to AWS, Gibraltar Area Schools no longer needs to purchase additional space or hardware. "You can just pay for it when you need it, turn it off when you don't, experiment around and check it out for pennies rather than buying new equipment," said Minten. He also gets near-instantaneous technical support. For a small fee, the district has the entire AWS support team as a resource. "I can talk to one of the AWS guys and have them say, 'Here is what you need to do.' That's amazing. To have that many people at your disposal without incurring a charge for every instance of help — it was a godsend for me."

Many districts face the same challenges as Gibraltar Area Schools. With AWS, districts can ditch the hardware that's been weighing them — and their pocketbooks — down. Utilizing the cloud enables districts to remain flexible, scale when needed and prevent downtime. Interested?

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