IN THIS ISSUE

9 | THE FCC NEEDS YOU
Now’s your chance to comment on E-Rate reform and let the FCC know what you need.

14 | E-RATE REFORM
Here’s why it matters and what it can do for your school.

20 | APPS FOR EARLY LEARNING
Not all education apps are created equal. But what does a good one really look like?

23 | CLOUD COMPUTING LAW
The legal issues to watch out for when storing cloud data may surprise you.

27 | LOCATION-BASED DATA TO THE RESCUE
New analytic software helps leaders make data-driven choices.

31 | 4 KEYS TO VIRTUALIZATION
Our expert shares his 4 steps to designing a virtual desktop environment.

DEPARTMENTS

3 | OUR SPACE  E-Rate Reform Begins at Home

4 | HERE & NOW  5 Steps to 1-to-1 Success

7 | PRODUCT ROUNDUP  7 New Apps for Schools

8 | INNOVATOR  Jane Englert, Technology Integrator

36 | INDEX

The FCC must catch up with schools’ needs for more and faster broadband.

REFORM E-RATE NOW!
Bring learning to life with the Acer ICONIA tablet. With a touch-screen display, high-definition resolution and an attachable keyboard, you'll get an experience so immersive, it feels light years away from the classroom.

Learn more at www.letthemtouch.com
The FCC has the opportunity to redefine equitable access, which is now less about the device and more about connectivity. One key section in the proposed overhaul asks if the FCC “should permit schools to provide wireless hotspots to surrounding communities using E-rate supported services.” The answer to that should be a resounding “Yes!” (Or, if you are Homer Simpson, “D’oh!”) But wireless “hotspots” are not enough. Unless those community centers are a safe walking distance from every student’s home, opened early and closed late, and provide instructional guidance, we are still looking at serious inequitable access to digital learning resources.

I’d like to see the E-Rate extend discounts to families who need them. If families can’t afford their cable or telco rates, then there is no home access. And learning begins at home, now more than ever.

IF WE KNOW ANYTHING at all about the impact of technology on learning, we know that students must be able to use it when they need it, as long as they need it. Studies from Project RED and other research initiatives have shown that ubiquitous access is a necessary (although certainly not sufficient) condition for technology to have a positive impact on student learning outcomes and behaviors. Hence, the move by so many districts toward a 1-to-1 computing ratio.

But here’s the not-so-secret secret about 1-to-1 access: anytime and anywhere doesn’t just mean during the school day. For technology to have its truest impact, students need to be able to do research, use productivity tools, get instruction, engage with text, and practice skills (remedial or otherwise) at home, too. And as more and more of these educational resources become web- or cloud-based, the need for sufficient bandwidth at home becomes the final, and critical, frontier in learning connectivity.

With the E-Rate reform now under consideration, the FCC has the opportunity to redefine equitable access, which is now less about the device and more about connectivity. One key section in the proposed overhaul asks if the FCC “should permit schools to provide wireless hotspots to surrounding communities using E-rate supported services.” The answer to that should be a resounding “Yes!” (Or, if you are Homer Simpson, “D’oh!”) But wireless “hotspots” are not enough. Unless those community centers are a safe walking distance from every student’s home, opened early and closed late, and provide instructional guidance, we are still looking at serious inequitable access to digital learning resources.

I’d like to see the E-Rate extend discounts to families in schools’ catchment areas, perhaps using qualifiers like those who receive free or reduced lunch. (I’d also like to see the E-Rate program ensure schools get those discounts. As CoSN CEO Keith Krueger notes in our cover story on page 14, there has been little transparency on the requirement to give schools the lowest rate.) If families can’t afford their cable or telco rates, then there is no home access. And learning begins at home, now more than ever.
5 Steps to 1-to-1 Success

BEYOND Technology Education (BTE), a K-12 tech integration consultancy, has developed a five-stage process for preparing schools to tackle 1-to-1 programs — a process it says takes three to four years to achieve fully. Calling its integration process SWIMGrid (for “school-wide integration model”), BTE details five phases:

1. **Train the teachers.** If instructors aren’t confident using the technology, they’ll have trouble integrating it into their curriculum. They need to speak up to get the support they require. Advises the company, “Start by identifying the level of technology knowledge and training gaps to uncover where the real needs are.”

2. **Seek ways to equip students with 21st century skills.** Educators should view technology as a “productivity tool” to encourage students to tackle complex problems through project-based learning.

3. **Integrate technology into the curriculum.** Says BTE, “Add technology projects to fit into existing curriculum. The goal: to provide students with technical skills and to show them how to apply what they’re learning to the real world.” Inspired students, the company notes, are motivated learners.

4. **Build the infrastructure with a view to the future.** The classroom networking infrastructure needs to be secure and ready to handle the new and growing loads imposed by mobile computing, the use of digital textbooks, streaming video, and other broadband-hungry applications.

5. **Track and assess projects.** Make sure to schedule “periodic assessments,” says BTE, to make sure that new instructional practices stay on track and hit their goals over the long term.

---

**Teachers Are Not the Problem**

For the first in a series of podcasts devoted to teachers, Being Mobile’s Elliot Soloway and Cathie Norris explore the age-old perception that teachers are the underlying problem behind American students’ poor performance in international assessments, and decry “America’s mistaken perception.” Future podcasts will focus on how schools can begin to reverse course on the issue.

**The 6-Year-Old Blogger**

**VIDEO:** Kathy Cassidy, author of *Connected from the Start: Global Learning in the Primary Grades*, discusses the six biggest reasons for creating digital portfolios in every class, even with young learners. Cassidy also shares her top platforms for getting started. For more on Cassidy’s book, read an excerpt at thejournal.com.
Microsoft has formally launched Bing for Schools in a nationwide pilot. The service provides privacy-enhanced features for students, free Common Core-aligned learning resources targeted toward specific grade levels, and a technology rewards program for schools. In addition, through the Bing Rewards program, parents, teachers, and students can earn free Microsoft Surface RT tablets for their classrooms by using the site and donating "credits" to a school of their choice. Information on joining the pilot is on the Bing for Schools registration page.

As part of its nationwide STEM initiative, curriculum development company STEM Fuse is giving away its full semester game design course GAME:IT to 10,000 high schools. GAME:IT is an introductory-level course that engages students with project-based learning and focuses on building working games through programming, math, physics, and engineering concepts. At the end of the course, students can enter their games in a national competition run by the company.

HP’s free Catalyst Academy is expanding its offerings to include new courses on intercultural understanding, games for learning, using mobile apps to convert students into “citizen scientists,” and more. The courses are developed by educators from around the world. With support from the International Society for Technology in Education (ISTE) and the New Media Consortium (NMC), the goal of the program is to reach “hundreds of thousands” of teachers in grades 6 through 12 around the world with courses that focus on STEMx education.

**Change the World Challenge**

The Siemens Foundation and Discovery Education’s We Can Change the World Challenge tasks K-12 students with identifying an environmental issue in their classroom, school, or community and creating a replicable green solution. Contestants can earn more than $300,000 in prizes.

The challenge pairs student teams with faculty advisers to develop actionable concepts that can make an impact on communities. Concepts will be reviewed, in a rigorous three-part process, by a panel of environmental advocates and science educators who will judge teams based on their research, analysis, and the replicability of the solution. Last year, the top prize went to Rockdale Magnet School for Science and Technology in Conyers, GA, for a project on optimizing solar cells for sustainable use.

Student and school prizes vary according to grade level and include scholarships, savings bonds, school grants, and adventure trips. The deadline to enter is March 4, 2014.
E-Newsletter Spotlight

K-12 E-Learning Report

6 Excellent Sites for Free Digital Textbooks

BY DIAN SCHAFFHAUSER

Plug “digital resources for K-12” into Google and you’ll get a bazillion results (or maybe it just seems that way). Head to any resource site for teachers and you’ll lose yourself in a miasma of links. Thinkfinity will link you to Smithsonian, which will direct you to HippoCampus, and onto Khan Academy, and over to Curriki, and off to—well, you get the picture.

As wonderful as those sites are, sometimes you don’t want to spend all your planning time piecing together a school year’s worth of lessons from a multitude of websites. You just want the whole enchilada delivered in textbook form from which you can select the content you’ll assign to your students.

To that end, we have hunted down the top sources for digital textbooks, all of which are free.

California Learning Resource Network (CLRN)
The current number of open educational resources (OERs) on CLRN stands at 6,063. If you’re teaching high school-level math, science, history, or social science, what you want to pay attention to is the free textbooks link, which includes 30 no-cost books. The site counts up standards met for many of the textbooks; but since they’re being compared to California education standards, that metric may or may not be of use to you.

CK-12 Foundation
This pioneer in the field of OER has a simple student interface. Go to the home page, pick a topic, and choose a “FlexBook” from what’s listed. English has three offerings (one a teacher’s edition), history has two, math has five (all for middle school), and earth science has five. This is one of the few resources that actually allows reviewing. For example, CK-12 Earth Science Concepts for High School, written by science writer Dana Desonie and running 1,208 pages in PDF format, gets 11 thumbs up and no thumbs down. FlexBooks can be downloaded in three forms: PDF, mobi, and ePub (for iPad and Android devices).

Users have to sign in for access to the textbooks, but you can use your Google, Facebook, or Twitter account for that. Once you’ve provided that, you’ll receive a confirmation e-mail that will guide you back to the site for your downloads.

The Apple App Store
Apple doesn’t make it easy to hunt down digital books created with iBooks Author that might be relevant to K-12 teachers. But we uncovered a few offerings worth a mention. First, you’ll find all of the CK-12 textbooks in the App Store for easy download. Read on for a list of four new textbooks to try.

Read the full story online at thejournal.com.

T.H.E. Journal E-Newsletters
Click to subscribe to any of these newsletters:

T.H.E. News Update
What you need to know now about K-12 ed tech

T.H.E. 21st Century School
A/V, interactive, and collaborative technologies for K-12

K-12 Mobile Classroom
Mobile technology in the K-12 classroom

Common Core Tech Update
Tips and tools to help simplify your CCSS rollout

K-12 E-Learning Report
Trends and analysis in digital and online learning
Product Roundup

The latest releases, services, and new product versions

7 New Apps

Slideshow:

AV & Presentation
- MimioStudio 11 Enhances Common Core Practice Tests, Expands to Android
- Free Interactive Learning App To Roll Out Next Month
- iLook.statusText Reveals 2 Document Camera Updated Insight 360
- Camtasia Studio Adds Chroma Key Support, Video Cropping

Infrastructure & Facilities
- B&K Rolls Out Dual-Channel Arbitrary Waveform Generators
- Red Hat Debuts Enterprise Linux OpenStack Platform for OpenStack-Powered Clouds

Click here for new releases

Text to Tech

Mooresville Graded School District (NC), the winner of the 2012 Sylvia Charp Award, recently adopted a digital social studies textbook, Discovery's Social Studies Techbook, for its middle school classrooms. The book provides links to historical resources and activities intended to help students think critically, develop arguments, and investigate history. The social studies series covers curriculum for United States history, world history, and world geography and cultures. Read the full story online.

Point-and-Click Pickup

To help structure the pickup of students after school, Fort Mill Elementary School (SC) is piloting the KidGopher system, which tracks students and caregivers through an iOS app and digital signage. During pickup times, teachers scan specially issued guardian ID cards with an iOS device, and a corresponding app displays the list of students (with photos) for cross-reference. As each student is checked off, his or her name is removed from a queue displayed on a nearby digital signage board. Additionally, the school is able to store a permanent record of each child's pickup. Read the full story online.

Assessing Performance

Bibb County School District (GA) will use software from Performance Matters to manage assessment data and stay on top of assessments that require schools to monitor learning outcomes and teacher and administrator effectiveness. The 41-school district will use the company's Formative Action System for Teacher Effectiveness and Student Learning Objectives Module, which allows teachers and students to create individual learning plans with assessments and targets. After testing, teachers will use the software to see student performance and view the percentage of students achieving targets. Read the full story online.

Point-and-Click Pickup

To help structure the pickup of students after school, Fort Mill Elementary School (SC) is piloting the KidGopher system, which tracks students and caregivers through an iOS app and digital signage. During pickup times, teachers scan specially issued guardian ID cards with an iOS device, and a corresponding app displays the list of students (with photos) for cross-reference. As each student is checked off, his or her name is removed from a queue displayed on a nearby digital signage board. Additionally, the school is able to store a permanent record of each child's pickup. Read the full story online.

Assessing Performance

Bibb County School District (GA) will use software from Performance Matters to manage assessment data and stay on top of assessments that require schools to monitor learning outcomes and teacher and administrator effectiveness. The 41-school district will use the company's Formative Action System for Teacher Effectiveness and Student Learning Objectives Module, which allows teachers and students to create individual learning plans with assessments and targets. After testing, teachers will use the software to see student performance and view the percentage of students achieving targets. Read the full story online.
TECH AS A TOOL

I try never to start with a tool; I start with a reason for using the tool. For instance, let’s consider ActivExpression clickers from an assessment perspective. Simply providing instruction on the ActivExpression devices in isolation misses the true intent for effective technology integration. Instead, the goal is to embed that level of instruction into a professional development experience for the teacher at a point of genuine need. From there, the teacher and I can work collaboratively to design instruction employing both online resources and face-to-face time, using the ActivExpression devices to generate student data, thus guiding instruction. The technology tools are essential, but they are a means to a greater end. The tools we work with today are going to change. The focus has to be on the skills, on the purpose to use a tool effectively.

LOOSENING THE REINS

We had students creating a Glogster, taking an adventure story that had to do with disasters. I didn’t spend a lot of time introducing Glogster; I allowed them to use their intuition, to play a little bit, and then answered questions based on their needs rather than droning on about something they might already understand. It boils down to using information in some way: to communicate, to demonstrate, to create. The technology is what allows you to do that. The essence to me is to build projects that give the student the opportunity to make decisions about what tools will best meet that need. Not all teachers are comfortable with that. From a management perspective it’s easier to say, “This is the tool you have to use.” But my goal is that teachers eventually relinquish some of that control, allowing the students to struggle through some of the discovery of how to use that tool.

STUDENTS AS TEACHERS

I worked with a chemistry teacher on a flipped classroom model. There was some concern about whether it would be accepted, so we had to inform the parents and administrators what the flipped model was and get their blessing to offer coursework using the strategy. I ended up taking that experience and building a Moodle course that I’m hoping to use to individualize professional development by letting teachers go through the coursework online. So we flipped in the classroom, and now I’m looking to flip the professional development.

USING WHAT’S AT HAND

One time I went to a conference, sat in a fabulous session about infographics and all of the tools the presenters used, and came back invigorated. I thought this would be really useful for our teachers. And what I discovered in preparing for my presentation is that not all of the things folks recommend when you go to these conferences transfer well into your own environment. That forced me to try to come up with ways to use what we already have here to accomplish the same thing. Our district has had a big initiative with Promethean interactive whiteboards, so I figured out how to use them to accomplish something I hadn’t thought about before. There’s always something new in technology, and it can be overwhelming to try to keep up, but sometimes the answer is right there in front of you — just using a piece of technology or software in a different way.

INNOVATOR

JANE ENGLERT, LEARNING DESIGNER AND TECHNOLOGY INTEGRATOR
EPHRATA HIGH SCHOOL (PA)

On Sep. 12 at 4 PM EDT, learn more about Englert’s innovative use of technology in an edWeb.net webinar hosted by T.H.E. Journal’s Christopher Piehler.
POLICY & ADVOCACY

Uncle Sam Wants YOU to Comment on E-Rate
Want more funding for broadband? Now’s your chance to let the FCC know what you need and why.

My name is Geoff and I’m a policy geek. I have just read through the 100 single-spaced pages (that’s 339 paragraphs) of the mind-numbing, footnote-laced Notice of Proposed Rulemaking (NPRM) for the E-Rate. This proposed “modernization of the E-Rate” is the cornerstone of the president’s ConnectED program, and it addresses all aspects of the E-Rate in an incredibly comprehensive way. You should take note of the NPRM, because you can have a say in whether the E-Rate has more money put into it, how that money might be distributed, and how the program operates and is administered. The potential for you to have an impact on one of the most vital components of infrastructure for education is enormous.

SETDA believes that for most states and districts: 1) demands for more broadband for learning are growing beyond schools’ ability to provide it; 2) broadband access is necessary to meet school reform and improvement goals and improve learning for all students; 3) the E-Rate program needs to be simplified and better targeted to school need; and 4) more funding is required to meet these needs.

When it comes to revising the E-Rate program, all the proverbial stars are aligned. As Michael Steffen, director of digital learning at the FCC, told SETDA members on a call, “We are at a special moment in education technology and the possibilities that it creates. That idea has created enthusiasm for really pushing on this issue in the near term...all the way up to the president of the United States, but also the chair of our oversight committee in the Senate, the secretary of education, the leadership here at the commission, all the commissioners are very engaged...
in this. That confluence of things doesn’t happen that often.”

So let’s all take advantage of this celestial miracle and let the FCC know what schools want. And the way to do that is through the NPRM, whose purpose is to solicit feedback on the E-Rate.

In other words, how the public — which includes you, other educators in your district, your state officials, the telecommunications carriers, and all the suppliers of products and services that are affected by the E-Rate — responds to the NPRM in general (as well as some specific

**NPRM COMMENT DEADLINES AND DETAILS**

There are two deadlines to comment on the NPRM. The first is Sept. 16, the same day this issue goes live. So if you haven’t commented by the time you read this, odds are you won’t make this deadline. But you can still make your voice heard.

There is a second deadline for “reply comments,” which means you get a chance to see what others have filed and then you can either comment on their comments or you can file fresh comments. This deadline is Oct. 16.

To comment, you can refer to the NPRM, which you can download here. To submit your comments electronically, save them as a PDF file, making sure to include your organization’s name and date on each page. It is also best for your comments to refer to a specific paragraph in the NPRM, if possible, to make it easy for the reviewers.

The FCC’s submission page is here. In the box that says, “Proceeding Number,” enter the code 13-184. After you fill out the basic information about your school or district, you can use the “Browse” button at the bottom of the “Document(s)” section to find and upload the PDF you have created.

---

**IT’S NOT JUST TECHNOLOGY YOU’RE PUTTING IN STUDENTS’ HANDS. IT’S POSSIBILITY.**

When the nation’s second-largest union high school district decided to equip 6,500 7th graders (and 44,000 over the next six years) with iPads, they needed to pair those iPads with the best LMS available. A great 1:1 program—where every student gets their own device—demands an LMS that’s intuitive, user-friendly, with uber-responsive support and a seamless implementation process. That’s why Sweetwater Union High School District decided to partner with Canvas. It’s 21st Century education on a 21st Century device with a 21st Century LMS.

See how Canvas can help you transform learning and find out more about Sweetwater Union High School’s experience with Canvas at instructure.com/thejournal or by calling 855.308.2804.
With NetSupport School you can run your classroom efficiently - whatever the configuration.

With NetSupport School you can run your classroom efficiently - whatever the configuration. Building on its core Windows capabilities (including Windows 8), NetSupport's award-winning classroom management software now combines its powerful monitoring, instruction and assessment tools with support for Apple Mac and Linux desktops, Google Chrome OS netbooks and Android tablets, to deliver the answers to all your classroom challenges. And with our free-to-download tablet and smartphone version for teachers, you can even support your NetSupport-managed classroom on the move.

Building your IT labs with the latest technology is one thing; ensuring teachers have the tools to effectively support and manage students in today's multi-platform learning environments can be quite another!

Learn more and download a free classroom trial at www.netsupportschool.com
have seen in your district over the past few years, so much the better.

- **Trends or policy changes help to paint the picture of the larger ecosystem.** For example, North Carolina recently passed a bill that requires all instructional materials to be digital by the 2017-2018 school year. Obviously, that has enormous implications for broadband in North Carolina schools. If your district has made a similar move or is going to 1-to-1 or launching any other initiative that will require more broadband, the FCC needs to know that. The more schools that provide this information, the more powerful the case will be to expand funding (see below).

**Specific Information**
The E-Rate experts in states and districts will weigh in on the esoteric and painfully detailed questions about such issues as the alteration of specific forms, dark versus lit fiber, and how to account for multiyear contracts to prevent waste, fraud, and abuse. But even if you don’t have a working knowledge of the E-Rate, you probably have opinions about a number of topics that are raised in the NPRM. Here are a few examples:

**Sufficient funding:** Paragraph 62 of the NPRM states, “The E-rate program has traditionally been able to fund all priority one requests but the total demand including priority two requests has exceeded the E-rate program’s (sic) almost every year since the program’s inception.” If you feel you need more funding, the FCC needs to hear that with some specificity: What is it that you have not been able to do vis-à-vis infrastructure and digital learning because of a lack of funds? If people at the local level are not advocating for it, the chances that it will happen diminish significantly.
Connectivity within the school: A key set of questions within the NPRM concerns where some of the funded services should be changed in order to increase broadband connectivity inside a building. The E-Rate is weighted heavily to getting connectivity to the school door — but if it can’t get around the building, it doesn’t do teachers and students in classrooms much good. You need to share your classroom connectivity challenges.

Wireless community hotspots: Paragraph 319 of the NPRM asks if the FCC “should permit schools to provide wireless hotspots to surrounding communities using E-rate supported services.” In 2010, the FCC allowed E-Rate-supported services to be used by the community at large when classes were not in session. Because “the Commission recognized that students’ need for broadband access does not end when their schools’ doors close for the day,” it allowed after-school, on-premises access to students and other members of the public.

If you have implemented a 1-to-1 program or are planning other digital learning initiatives, you will have a much greater chance of success if students can use connected devices beyond the four walls of the school.

This is one of those situations where speaking up is not a futile gesture. Your response will make a difference, and your lack of response could say to the FCC that you have sufficient broadband and do not need any additional funding support.

Connectivity goals: A key question from the NPRM is this: How do we measure success? The NPRM specifies the targets SETDA set in “The Broadband Imperative”: At least 100 Mbps per 1,000 students/staff for external connections in the 2014-2015 school year and at least 1 Gbps per 1,000 students/staff in the 2017-2018 school year. For internal wide-area networks, the targets are at least 1 Gbps per 1,000 students/staff in 2014-2015 and at least 10 Gbps per 1,000 students/staff in 2017-2018. These targets have become a prominent focal point in the ConnectED Initiative and the NPRM, and the NPRM asks if these targets are high enough or too ambitious. They were specified in April 2012, and since then we haven’t seen anything that would call for the targets to be diminished in any way.

This is one of those situations where speaking up is not a futile gesture. As Michael Steffen and the FCC commissioners have said, it is critically important that the FCC hear what schools across the country are doing. Your response will make a difference, and your lack of response could say to the FCC that you have sufficient broadband and do not need any additional funding support.

Change the world — respond to the NPRM.

Geoffrey H. Fletcher is the deputy executive director of SETDA.
The FCC must catch up with schools’ needs for more and faster broadband.

By John K. Waters

In July, the Federal Communications Commission (FCC) held an open meeting to discuss modernizing the Schools and Libraries Program of the Universal Service Fund, better known to the rest of us as E-Rate. During that meeting, the gathered commissioners voted to release a Notice of Proposed Rulemaking (NPRM), which launched “a thorough review and update of the E-Rate program” and opened a public discussion of E-Rate policies and procedures. Districts that want to have a voice in the discussion have until Oct. 16 to comment on the NPRM. (For full details on how to comment, read “NPRM Comment Deadlines and Details” on page 10.)
Publication of the 175 pages (including appendixes) of the NPRM began what could be the most extensive overhaul ever of the program most responsible for helping K-12 schools access modern communications networks. The authors of the NPRM note that since E-Rate was created in 1996, it “has been instrumental in ensuring our schools and libraries have the connectivity necessary to enable students and library patrons to participate in the digital world.” But the program has changed surprisingly little over the years, especially when compared with the technologies it supports.

Moreover, there is a growing consensus, acknowledged by the FCC, that E-Rate “needs to sharpen its focus and provide schools and libraries with high-capacity broadband connections.” The FCC makes the case for such a shift in educational priorities in the NPRM’s introduction:

Increasingly, schools and libraries require high-capacity broadband connections to take advantage of digital learning technologies that hold the promise of substantially improving educational experiences and expanding opportunity for students, teachers, parents and whole communities. As a result, there is a growing chorus of calls to build on the success of the E-Rate program by modernizing the program and adopting clear forward-looking goals aimed at efficiently and effectively ensuring high-capacity connections to schools and libraries nationwide.

Tom Koutsky, chief policy counsel at Connected Nation, would count himself among that chorus. He worked for the FCC prior to joining Connected Nation, a 10-year-old nonprofit focused on expanding access to broadband and related technologies. While at the FCC, he served on the team that authored the National Broadband Plan.

Koutsky is his organization’s policy lead on FCC and congressional affairs.

We believe your IT lifecycle should be filled with opportunities, not obstacles.

Whether you need new systems, are looking for an innovative approach, or want help navigating the ever-changing licensing landscape, count on GovConnection to transform your IT lifecycle requirements into reality.

GovConnection’s experts can help you discern your organization’s technology needs, design innovative solutions to complex challenges, and deliver the products, services, and guidance you need to realize your goals.

From inventory planning to asset disposition, we’ve got your back.

WE SOLVE IT.

www.govconnection.com
1.800.800.0019

How Can We Help?

Learn how GovConnection can help you seamlessly integrate the latest technology into your classroom.

LEARN MORE
in Washington, DC. *T.H.E. Journal* caught up with him moments after he left that July FCC meeting.

“E-Rate was very successful in getting schools initially connected to the internet,” he says. “But over the past 17 years, the commission hasn’t kept up to date technologies and outdated services. “E-Rate has been paying for a panoply of telecom services that just don’t support the educational mission of most schools and libraries,” Koutsky says. “Pagers are probably the most egregious, but we need to think about why the program is supporting dial-tone services, cell phones, etc. The question we have to answer is, ‘Are those things a priority?’ When we have a national priority to get much higher broadband connections to schools, does E-Rate need to be paying for pagers?”

Last year, the E-Rate program’s administrator organization, Universal Service Administrative Company, committed approximately $934,000 to paging services, according to the FCC. Directory assistance services are also eligible for E-Rate support, as are such custom telephone features as inside wiring maintenance plans, call blocking, 800-number services, and text messaging. The FCC proposes to eliminate support for these services in the NPRM.

To be fair, some of these were hot technologies when the E-Rate program was created nearly two decades ago. Only about 14 percent of K-12 schools in this country were connected to the nascent internet at that time, and most of those were connected at dial-up-level speeds. Today the percentage of connected schools is closer to 94 percent, but many of those connections simply aren’t fast enough to keep up with the demands of increasingly bandwidth-hungry digital learning systems and technologies.

In fact, in the NPRM, the FCC points to a 2010 FCC survey of E-Rate funded schools and libraries in which “only 10 percent of survey respondents reported broadband speeds of 100 Mbps or greater, while 48 percent reported broadband speeds of less than 10 Mbps. Approximately 39 percent of the respondents cited cost of service as a barrier in meeting their needs, and 27 percent cited cost of installation as a barrier.”

**Stop Paying for Pagers**

Part of the process of getting E-Rate focused on broadband is likely to involve shedding its support for fading with regard to the services E-Rate helps to fund. The result is that we have a scattershot outcome. Some schools are very well connected with significant bandwidth coming in, but the vast majority of schools still have very basic levels of connectivity today that are essentially much slower than the typical household has.

The significance of what happened today is that [the FCC] reestablished some priorities in the program. This meeting made it clear that the goal of E-Rate is to support faster broadband connectivity.”

**“Some schools [have] significant bandwidth coming in, but the vast majority of schools still have very basic levels of connectivity today that are essentially much slower than the typical household has.” —Tom Koutsky**
later, shortly after the FCC published its NPRM, the president issued a supporting statement, essentially suggesting that efforts to modernize the E-Rate program are in line with the goals of the ConnectED initiative: “[W]e look forward to the next steps in this effort,” he said in the statement.

Such an endorsement from Washington could have a real impact, Koutsky said, because national priorities can move private markets. “E-Rate doesn’t pay for tablets or software or laptops,” he says. “By establishing this as a national priority, the private sector will know that a large market is opening up for distance and digital learning. That will incent the private sector to develop apps, tools, software, and devices that will utilize those faster connections, and feed into this evolving educational technology market.”

Both the president and the FCC define a “high-speed” connection as at least 100 Mbps, but up to 1 Gbps, in most schools. In the NPRM, the FCC states its intention to seek comment on adopting bandwidth targets in schools — suggested by the State Educational Technology Directors Association — of 100 Mbps per 1,000 users, increasing to 1 Gbps per 1,000 users. (Full disclosure: The author of this article worked with SETDA in preparing a white paper in which these targets were suggested.)

SETDA’s deputy executive director, Geoffrey H. Fletcher, sees the unfolding of what has been called “E-Rate 2.0” as a response to changing times and technologies. “This is something that has been brewing for some time,” he says. “It follows the National Broadband Plan, of which education was a big part. I think there’s a lot of momentum behind it. This is a terrific opportunity, and I believe the commissioners truly understand that. I mean, they haven’t taken such a comprehensive look at this program…ever.”

If nothing else, the sheer size of the NPRM underscores the FCC’s seriousness in this matter, Fletcher argues. He also points out that, although broadband is taking center stage, the FCC is also aiming to modernize in other areas. “Modernization of E-Rate is not just about bandwidth,” he says, “but a range of things. It’s about the administration of the process and bringing it into the current decade. It’s about how to deal with recurring costs, how to support things like multiyear purchasing, how to improve electronic filing and use the data that...
we’re going to set high expectations for our districts and students, as we rightfully are, we have to be willing to equip them with the resources they need to meet those expectations. So there really shouldn’t be any question that we should do what we can to update a program that’s 17 or 18 years old and make sure that’s it’s structured the way it should be. And funded the way it should be.”

John D. Harrington agrees. During a recent webinar, Harrington, the CEO of Funds for Learning, an E-Rate consultancy, noted that in the past 15 years, demand for E-Rate-funded internet access has more than tripled, from $15 per student to $50 per student. In the NPRM, the FCC writes: “It is likely this year that only school districts with nearly 75 percent of students eligible to receive free or reduced price school lunch will receive any funding for internal connections. In future years, in fact, it is likely that requests for telecommunication and internet access services generates. It’s about getting WiFi into the schools, looking at the internal connections, not just the line to the schoolhouse. And it’s about finding ways to make the program more equitable.”

Finding the Funding
The E-Rate program subsidizes a range of services with fees collected from telecom companies, much of which is recovered from consumers via the “Universal Service” line item on their phone bills. The program is capped at $2.25 billion, which is about half the funding sought by schools and libraries in 2013. According to the FCC, demand for services has exceeded the E-Rate cap every year since the program was started.

“There’s a $2.5 billion gap,” says Brian Lewis, CEO of the International Society for Technology in Education. “And the NPRM gives us an opportunity to talk about that gap. The reality of our world has changed. This isn’t a textbook world anymore. If
will exceed the cap, with the result that no funding for internal connections will be available for any applicants.” Harrington says, “We estimate that as early as 2014, there will be no support for 47 percent of schools in America for any type of internet access,” he says. “By 2015 under the current program rules, 71 percent of schools will be eliminated from receiving any E-Rate program support.”

The funding cap should be raised, Harrington says, but all of the additional funds wouldn’t necessarily have to come from an increase in the fees that consumers currently pay on their telephone bills. E-Rate is one of four Universal Service Support programs, and it accounts for about a quarter of the money gathered in that program.

One approach would be simply to reallocate those funds. The Connect America Fund, for example, is a Universal Service fund designed to extend broadband to high-cost areas, rural communities. Adding those funds to the E-Rate funds could further the overall policy goal, he says.

Among the upgrades Keith R. Krueger, CEO of the Consortium for School Networking, would like to see in E-Rate 2.0 is increased transparency around services pricing. “Since the program was enacted, telecommunications companies have been required to provide the lowest price available to schools and libraries,” he says.

“However, there has been no transparency around that, and we suspect that some places are getting better deals than others. We need to shine a brighter light on the costs. Additional transparency would give districts a better idea of what their neighboring districts are paying for the same types of service, putting them in a better bargaining position. Perhaps we could stretch those dollars even farther with more transparency.”

The FCC’s decision to modernize the E-Rate program has presented educators with an unprecedented opportunity, Krueger says, and they should take full advantage of it. “It is critical that educators weigh in on the importance of modernizing the E-Rate program,” he said. “We need thousands of voices. Now is the time to make that moon-shot investment in this program. If educators loudly support this vision of connecting 99 percent of classrooms with broadband within five years, if we raise our voices on how important E-Rate is, there will be the political will to make this happen. We have support from the president, and some bipartisan support from the commission, but they want to hear from educators about what’s needed.”

Fletcher agrees: “The commissioners want data,” he says. “They want to know what speed is coming into your school. They want to know whether you have copper or fiber. But they also want to hear your stories—how you had to sweep the snow off the dish before you could connect to the internet. And they want to hear about trends: If more and more school districts are moving from print to digital instructional materials and more and more are going to the internet for rich materials, you’ve got to have broadband to make that happen.”

“I don’t believe we’ll see big changes in one fell swoop,” he adds. “But everybody is ready for a change, and it’s going to happen.”

John K. Waters is a freelance journalist and author based in Mountain View, CA.
EXPERT PERSPECTIVE

Stephen Gass

How to Choose the Right Apps for Early Learning

Young children learn best from carefully vetted content.

“Make no mistake about why these babies are here — they are here to replace us.” — Jerry Seinfeld

Good news: Babies are born wired to learn. Instinctively, our youngest “digital natives” (those who have only ever lived in a technocentric, screen-centric world) will:

- Take initiative
- Act on their natural curiosity
- Make clear choices
- Try different approaches
- Stick to a task to persist at a goal
- Share their discoveries and seek social interaction

At minimum, it sounds as if babies are ready to take on the four C’s of the 21st century curriculum (creativity,
critical thinking, communication, collaboration). Good news, again.

While these nascent skills will form the foundations for all future learning, they require scaffolding and exercise to insure the viability of the foundation. With the inextricable link between technology and 21st century success, an ever-growing library of baby/toddler/preschool apps and e-books, and the ubiquity of tots holding tablets and phones, the inevitable question becomes this: How might we use these digital tools to best build those foundations?

What the Research Tells Us
Currently, much of the data about young children and digital devices is device-oriented. As this literature review shows, several studies report on kids’ average hours of screen time per day (2.2 to 4.6 hours for 2- to 5-year-olds); others reflect a strong and positive attitude about the educational value of digital devices among a majority of parents; still others confirm toddlers’ and preschoolers’ ability to demonstrate the requisite motor and cognitive skills for clicking, tapping, swiping (at the older ages), and navigating through experiences of interest.

Unfortunately, we know less about the efficacy of the content or experience to deliver on the software’s educational promises. While a few studies in the literature review above show students improving in certain skill areas after using particular pieces of software, a set of generalizable rules, hallmarks, and features that might guide early educators’ choices is scant.

One study that does examine user experience looks at the design of the clickable hot spots found in most children’s interactive experiences. The findings suggest that when hot spots support, reinforce, or extend the e-story children are reading, the children are better able to retell the story. Extraneous or incidental “bells and whistles” had the opposite effect. While the former approach is quite common, more than likely as an educator, you are not surprised to learn that extraneous information, regardless of its entertainment value, can sabotage a well-constructed lesson.

In the context of the paucity of interactive content research, the point of this example is to illustrate that as educators, armed only with your instincts and knowledge of best practices, you are able to identify the resource best suited to any given learning goal and learner.

With that in mind, and with reinforcement from the vast archive of early childhood research literature that suggests that playing, exploring, and experimenting with open-ended materials (as well as building concepts through direct experience with people and objects) are essential for healthy growth and development, here are some guidelines for navigating the landscape of 21st century digital early learning.

Playground vs. Playpen
In order to be in the best possible position to effectively “replace” us, today’s children must be active learners who can readily go beyond producing the right short answer to knowing where, when, why, and how to apply information. Yet, the majority of today’s P.L.A.Y. WORKS

When choosing apps or any other educational tool for young kids, early childhood expert Stephen Gass suggests keeping in mind the acronym P.L.A.Y.:

P is for position: Make sure the child is in a position where he or she can see what’s happening.

L is for language: Whatever you do with a child, describe what’s happening.

A is for action: Whether it’s swiping or tapping, bring the child into the action as much as possible.

Y is for yuks: Have a good time, be silly, use silly voices. And if things go wrong, laugh about it!
digital experiences stop short, simply offering countless opportunities to identify, catch, and capture letters, shapes, numbers, and colors. Many, perhaps in an effort to prepare early learners for life in an agrarian society, also focus on naming favorite barnyard animals and noises.

Since the foundations of and attitudes toward learning are forged during the early years, it's essential that a child's digital learning play is built on more than naming things and receiving "good job" rewards, no matter how charmingly animated. When considering skill-building products in math or language, for example, look for digital equivalents of math manipulatives, such as Tangrams HD by Visual Learning Aids, that allow the child to play with math concepts; or seek out storytelling props that invite language play, such as Sock Puppets.

Toy vs. Tool
Classic toys such as dolls, blocks, balls, and role-playing sets (play kitchen, work bench, garage/roadway — all gender stereotypes aside) are familiar learning tools in many preschool and pre-preschool environments. In addition to providing opportunities for children to exercise certain motor skills, these types of materials are dependable standards for nurturing social, language, and a range of problem solving skills.

Many of the digital counterparts for these activities, however, are right-answer oriented, rather than allowing for truly open-ended play and exploration. Look for play experiences that avoid rigid rules, allow for exploration, and offer more than sound effects and easy cleanup, such as the Balls app by Iotic.

Real vs. Virtual
While hands-on interactions with objects and people in the real world are generally considered the preferred way for young children to learn, it's hard to resist the allure of a child at peace with a tablet. A myriad of electronic "paint" and music-making products promise countless hours of creative play. Look for those that, like a master arts teacher, can provoke a little exploration that may lead to a deeper understanding of how to build a piece of music or create an image to express an idea. A good example is Singing Fingers, an iPad app developed at MIT that lets the users finger-paint sounds (including their voice) on the screen, then play and explore the graphic musically.

Try to determine how readily these virtual explorations come off the screen and onto the floor, into the room, or on the walls through conversation, display, or live performance. And keep in mind that even the most profound curriculum or magical material is best served when there's a teacher, parent, or mentor to guide, interpret, narrate, scaffold, or extend the experience.

Today and Tomorrow
Despite the complexities of an increasingly digital world, it's often best to keep it simple. Regardless of the child's real world experience — from ducks to fire trucks — or the specific curricular goal, teachers can always just gather their group around the glow of the screen, do an image search, and compare, contrast, describe, and imagine away.

As early educators evaluate and wend their way through the mountain of apps, games, and digital "solutions," just remember that it's not about what technology can deliver, but what the child takes away.

Stephen Gass has more than 20 years of experience in the design, development, and distribution of learning products, including computer software, online applications, toys, games, books, and video. He is president of Every Baby Company, an organization he founded for the development of early learning products, the first of which is Eebee's Adventures.
Keeping pace with the minutiae of cloud computing law is a big challenge for any district. It’s also a necessary one.

When it came to helping districts navigate the morass that is modern data storage, the federal government likely had the best of intentions. In its 2010 National Education Technology Plan, the US Department of Education seemed to be betting its chips on cloud computing, remarking that a cloud storage model, where data is kept on internet servers scattered around the country or the globe, can “support both the academic and administrative services required for learning and education.” But at the same time, it hedged its bets a bit, remarking that the cloud “is still in a nascent stage with obstacles to overcome to fully realize its potential.”

Of those obstacles, legal issues remain one of the biggest factors limiting schools from fully embracing the power of the cloud. And despite the National Education Technology Plan’s apparent soft spot for cloud computing, the government has given little legal guidance as to how to meet those challenges. Among the issues facing schools are contracting, ownership, privacy, data security, and access. Here’s what to keep in mind as you explore any cloud service as a home for your data.

**Cloud Regulation**

At the core of the legal concern over cloud computing is data. In the digital world, data is constantly being created, archived, shared, and destroyed. The default position of the internet is open, meaning all the data that interacts with the internet can be shared. This presents a challenge for school personnel who are under legal obligation to keep the information secure. These legal obligations stem from the Family Educational Rights and Privacy Act (FERPA) and Children’s Internet Protection Act (CIPA), but also from related privacy statutes such as the Health Insurance Portability and Accountability Act (HIPAA). Other laws, such as the Children’s Online Privacy Protection Act (COPPA), apply to technology providers but also impact the school and require the school’s attention.
Compounding all of this federal regulation is a host of privacy and data security laws that vary by state, some of which might be surprising. Take state open records or “sunshine” laws, which permit the public and press to inspect records of government organizations, including schools. When public data is stored in the cloud, it may be subject to the open records requirements already applicable to schools, which can include Freedom of Information Act requests for non-student-specific data.

The majority of specific legal concerns about cloud-based data stem from the fact that some public data is privately held. While some public schools have created big resource-sharing cloud solutions, such as the Illini-Cloud in Illinois, most school districts contract to use proprietary cloud solutions from third-party vendors for various elements of the school organization. (Relationships between schools and districts and cloud vendors are explicitly permitted under the FERPA regulations.)

The vast amount of data that schools are storing in the cloud might include student attendance, student grades, student work products, course information, employee e-mails, employment files, the school budget, and many other core information functions. It might even include student-related work through familiar services like Edmodo, Dropbox, or Facebook.

A Look at Cloud Contracts
The private contracts between schools or districts and cloud vendors that govern all of this data are essential for providing legal clarity and protection for administrators, employees, and students. Many of these contracts, especially those involving large companies, are one-size-fits-all agreements. Smaller companies, and ones that rely on partnerships with schools, may be more open to negotiation (see the video at left).

For schools considering the legal elements of these contracts, it is important that these documents specify that the private cloud company has no ownership interest in the intellectual property contained in the uploaded data. Agreements specifically designed for educational use, such as the one for Google Apps for Education, make this clear in their contract (see 8). Cloud services that are not specifically designed for education may look to retain some ownership interest in the work. Most cloud computing contracts will also contain a secondary license granting the rights to use the intellectual property, including, potentially, commercially profitable sharing. The extent of this secondary license should be of great concern to educators.

Facebook is the classic case of exploiting user information—data that many would consider private—for their secondary purposes. Facebook states that the company will “use the information we receive about you in connection with the services and features we provide to you and other users like your friends, our partners, the advertisers that purchase ads on the site, and the developers that build the games, applications, and websites you use.”

These secondary licenses, varying widely in the degree of transfer rights, exist in nearly all cloud-based service contracts that serve the education market.

Terms of Acceptance
What rights are your students really signing away when you click “Accept” to an online agreement you haven’t read? Click here for the captioned version.
LEGAL ISSUES IN I.T.

An education-specific example of this rights-transfer clause can be seen in the Edmodo terms of use agreement. Many of these transfer rights are essential to making the product function and are generally harmless (like Edmodo’s right to modify a profile pic to fit in the display constraints). But because so few people read or actively monitor the usage of these transfer rights, there is room for abuse. For instance, one could envision a startup cloud company using a student image in their promotional video thanks to a broadly worded transfer rights clause.

Keeping Data Handy
Transfer rights are related to another important issue in cloud computing: privacy and security. In education, the privacy and the security of data are mandated by federal and state statutes designed to protect student and employee records. Specific certification for data security should be included in the contract, and the vendor should be able to show some form of industry-accepted certification for their data center or the data center with which they contract (making for even more complex contracts). Certifications include one issued by the American Institute of Certified Public Accountants and the International Organization for Standardization (ISO 27001), as shown by the industry standards met by the Amazon cloud storage solution.

Next, to help insure privacy, the contract should articulate ongoing access to data rights for the school organization. Not only is an “access to data” clause important for maintaining access to an institution’s own data for various daily uses, but access to data is important in the event of litigation.

As data increasingly becomes digital, the need to gather evidence for litigation has led to the field of e-discovery, which refers to the electronic documents or records requested during the investigational period of litigation by either party to the suit. (My University of Kentucky colleague Scott Bauries wrote a series of four blog posts that provides a great background to the issue in education.)

Because these e-records are increasingly stored in the cloud, a contractual provision with a cloud provider articulating your data access rights and limitations is essential to ensuring that your organization maintains control and assures the privacy of all of your electronic data, even during litigation when the cloud...
provider is likely to be involved in the discovery process.

A Complex Situation
As you can see, there are a variety of complex legal issues involved in cloud hosting of educational and employee data. Unfortunately, there is little legal guidance available for schools, and most local school board attorneys may struggle with the legal and technical complexities of this area. This situation is made even more complex, of course, by the uncertainty and lack of flexibility in industry-standard clickwrap agreements. Clickwrap agreements are the checkboxes we all tick off (but rarely ever read) when installing new software. These clickwrap agreements have been found to be applicable even to students in the education setting.

This complexity, lack of flexibility, and lack of legal guidance has led to some, such as industry watchdog SafeGov, to call for statutory or regulatory reform to meet the challenges of off-site data storage in education. Luckily, this issue has been examined more fully at the higher-education level. This series of reports by Educause (1) (2) (3), for instance, provides some useful background for K-12 professionals considering cloud transitions.

Obtaining the vast scope of benefits offered by cloud computing requires us to make some difficult transitions. In the near term, contracts with cloud providers are the only substantial mechanism by which educators can resolve these legal concerns. By working together over the next few years, the educational community can build a more robust legal infrastructure for cloud computing in schools.

Justin Bathon is an assistant professor of education leadership at the University of Kentucky and a director of the Center for the Advanced Study of Technology Leadership in Education (CASTLE).
The 30,000-Foot View
Geovisual software can help district leaders make data-driven decisions about redistricting, attrition, and transportation.

For district leaders, the modern school system can be a maze of options, with dead ends, wrong turns, and delays leading to classic paralysis by analysis. Solving the maze from within can be difficult, but rising above the labyrinth with geovisual analytics can illuminate the finish line.

For the uninitiated, geovisual analytics is an emerging interdisciplinary field integrating visual analytics and geographic information science. Essentially, the software sorts through massive amounts of data from school and local government sources to help school administrators find patterns and trends. These patterns can then be displayed visually — for example, layered over a district map. “It definitely beats staring at a spreadsheet,” says Chuck Amos, CEO of Minneapolis-based GuideK12, a geovisual analytics software company. “By adding the geographic, visual dimension to your data, we bring out insights.”

What sort of insights? Many schools, for example, are dealing with student attrition, and school boards want to know why. “We can help identify patterns of loss if schools are losing kids to private or charter schools,” says Amos. “With the right kind of insight, planners can react appropriately and determine what kind of magnet schools could attract those kids back to the local school system.”

Amos tells the story of a recent GuideK12 district that decided to explore the impact of combining middle schools, by looking at local crime statistics. “They wanted to analyze gang territories and work with local police to determine school safe zones,” explains Amos. “The police in many communities collect those statistics, and they can be brought into our software.”

Making Choices With Maps, Not Emotions
Amos says that objective software analysis can even help cool the heated topic of race. Specifically, he cites a situation in which one school’s racial balance was thought to be markedly different than the overall district. That perception turned out to be incorrect, and GuideK12 helped correct the misunderstanding.

“Racial balance tends to be a highly charged issue,” Amos says. “When the issue was raised at a meeting,
school officials were able to bring up information on the fly that showed racial balance at the school in question was actually within a very small variance of the overall district racial balance.”

The speed at which the software can produce actionable data is something that Robert R. Emerson, assistant superintendent of educational services at Farmington Municipal Schools (NM), really could have used during an arduous middle school redistricting process. Looking back on the marathon meetings that he endured without the help of GuideK12, he estimates that the software could have cut the redistricting time by two-thirds. “That process was the impetus for looking for a different software package that would help us in future projects,” says Emerson. “We’re going to be redistricting our elementary schools probably the year after next, and it’s going to be so much easier and quicker.”

Any redistricting initiative can be a daunting prospect, primarily due to emotional parents who are worried about their children’s future. Even in the relatively small, 40,000-person community of Farmington, educators’ misconceptions can cloud what is an otherwise straightforward decision. “People have preconceptions about neighborhoods and the kids who live there,” says Emerson. “Then you go and actually look and see who lives there, and suddenly people say, ‘Wow, we thought kids who lived there were all poor or Hispanic,’ when that’s really not the case. It’s helpful to eliminate some of those misconceptions. The software can take that out of the picture and show the real situation and demographics.”

From there, the mission to balance the number of children in each school along ethnic and socioeconomic lines becomes less emotional. “The software lets you talk numbers,” he says. “And the work goes a lot quicker.”

Decisions regarding attendance boundaries involve many different factors, and Ruben Morales, an assistant principal in the Miami-Dade County Public Schools (FL), agrees that emotions run high among parents. Lines on a map, however, do wonders to quell those emotions. “As you are drawing these maps, you can give parents a logical reason as to why certain blocks can’t go to a particular school, because there might be a natural boundary, such as a canal,” he says. “So if students are walking home they might have to go an extra 10 to 15 blocks because of that canal. Another school, on the other hand, might be a shorter distance and make more sense.”

Miami-Dade’s CIO Debbie Karcher says that the GuideK12 software’s mapping function has been a boon when it comes to establishing attendance boundaries. “The engine that this product is built on does the census count,” she says. “That makes it a scalable and efficient engine, which is difficult to find in the K-12 market. This software will receive any kind of data you can send it and will present it on a map, so you can get a geovisual display of just about any kind of data you want.”

Emerson adds, “We see patterns in growth that tell us there must be a lot of young families moving into an area because the number of kids is growing. Down the line, that is really going to help us. Right now our enrollment is fairly flat year-to-year, but a few years ago it looked like we were going to have to build new schools. If that starts to happen again, GuideK12 will be invaluable, because you’ll be able to quickly see patterns of where kids are living.”

Illumination Through GIS

Redlands, CA-based Esri (Environmental Systems Research Institute) provides geographic information system mapping software and geographic data content. While Esri GIS mapping tools can serve many purposes, including visualizations of the recent tornado destruction in Moore, OK, they are also useful in K-12 education.
This Month’s Top FREE Resources from T.H.E. Journal

Just for you—free valuable information available from a trusted industry source. Check out the most-accessed webinars, whitepapers, and other top free sponsored online resources T.H.E. Journal readers are viewing and using to help with institutional initiatives. **Access now—these resources are available only for a limited time!**

<table>
<thead>
<tr>
<th>INNOVATIVE TECHNOLOGY FOR K-12 EDUCATION</th>
<th>BYOD IN EDUCATION</th>
<th>CHROMEBOOKS IN EDUCATION</th>
<th>WINDOWS 8 AND BYOD</th>
<th>Antivirus for Apple Products</th>
</tr>
</thead>
<tbody>
<tr>
<td>A New Era of Go-Anywhere Learning</td>
<td>Simplifying Bring Your Own Device (BYOD) in K-12 Education</td>
<td>Going 1:1 with Chromebooks in the Classroom</td>
<td>Embrace the Trend: Windows 8 and BYOD</td>
<td>Safeguard Your School’s iPads and iPhones to Prevent Cyber-Attacks!</td>
</tr>
</tbody>
</table>

Looking for more resources? View our full range of **webinars** and **white papers**, or visit [THEJournal](https://www.thejournal.com) now.
According to George Dailey, program manager of GIS in Schools for Esri, the “foundational geographic nature [of GIS], coupled with its ability to interrogate data, model possibilities, and augment decision-making, means that GIS is pervasive and present in all areas of K-12 education.”

Dailey reports that Esri’s GIS capabilities are routinely used for choosing locations for new schools, assigning students to schools, picking bus stop locations, designing school evacuation plans and safety zones, routing delivery of cafeteria food, and analyzing outside lighting needs or maintenance.

Officials at the Davis Joint Unified School District (CA), for example, used Esri to examine the effects of closing the district’s Valley Oak Elementary School. Esri analysis revealed that only eight of the 122 K-3 students within one-mile walking distance of Valley Oak would be further than one mile from another school. This bit of data, in addition to many others, ultimately led to the decision to close the school.

Even in the realm of high-school athletics, geovisual analytics can play a role. Farmington’s Emerson explains that parents are all too willing to lie about where they live so that their kids can play on high-level sports teams. He uses GuideK12 to foil the pretenders. “One school was getting too big for its space because everybody was self-selecting that school, primarily because of the high school it fed into,” he says. “GuideK12 ties into our county assessor’s office database. When somebody says, ‘I live here,’ we can go into GuideK12 and find out if he or she actually owns that property, or is it an uncle or someone else? Sometimes it’s a business address.”

In some cases, people give guardianship of their kids to other people who live in other attendance zones just so the child can go to a certain school. “We can also use Guide K12 to check addresses of those guardians,” says Emerson. “It has really helped in that process, and made it a lot quicker to review those waiver requests… Now we’re getting fewer people lying because they know they’re going to get caught.”

The Road Ahead

Some school districts may continue to crunch data the old-fashioned way, but Dailey is convinced that truly effective school district management should include a geographic analysis using high-tech tools. “GIS is especially valuable for facilities planning, demographic mapping and student geospatial analysis, school transportation and logistics, safety, security, stakeholder information access, and the growing area of campus and facility management,” he says.

Ultimately, Miami-Dade’s Karcher believes the very existence of GIS and geovisual analytics software is a testament to the technological — and financial — considerations of the modern school district. “There are pressures on public schools to behave more like private, charter, and virtual schools,” she says. “So schools must start thinking like businesses.”

Greg Thompson is a freelance writer based in Fort Collins, CO.
4 Keys to Designing a Virtual Desktop Environment

The CIO of Lone Star College System discusses how to evaluate desktop virtualization opportunities, set up pilots, and ultimately establish a reliable production environment.

When implementing any new technology or system, IT leaders are increasingly having to answer the question: What’s the TCO? What’s the ROI? With desktop virtualization, making these determinations is anything but straightforward, since any calculation is tied to the overall goals and standards established during the planning phase. Furthermore, in a rapidly evolving market space, these standards have to be flexible while still keeping to the overall project goals.

Such considerations should prompt you to take the claims of the virtualization industry — whether it’s cost savings or hardware reliability — with a grain of salt. While significant benefits may ultimately be attainable, none of them is likely to become a reality until you settle the following key questions: What problem are you solving, and who will benefit from the solution?

First, though, it is critical to define the strategic value of any virtual desktop project. The startup costs for these projects are high, and the actual ROI may not be realized until the fourth or fifth year — a timeline that may change as you phase in more systems.

It’s vital, then, that any desktop virtualization initiative be clearly aligned with your institution’s strategic goals. If your district’s top goal is student success, for example, how can virtual desktops support that goal as part of the IT value chain?

Once you’ve evaluated the strategic value of a virtual desktop initiative on campus, you need to define exactly what your production environment will look like. You want a clearly defined architecture that will...
exceed your defined service levels and provide a rich user experience—while keeping the project on track and on budget. Here are four steps to help you achieve your goal.

1) Monitor Demand
First, you need to know how your schools actually use computing resources across your district and what systems offer the best opportunities for desktop virtualization. Many tools on the market provide visibility into how systems are being used. By monitoring application demand and system-resource utilization, these tools identify those systems that are prime candidates for desktop virtualization. At Lone Star College System (TX), we identify desktop virtualization opportunities by looking at the last 30 days of usage data.

These assessment tools can serve double duty since many also have the ability to monitor issues that may occur after you stand up your virtual desktop environment. This allows the IT team to ensure that newly deployed applications are performing well and that the appropriate resources are available.

2) Establish Proof of Concept
Before you finalize a deployment plan, it’s critical to pilot a virtual desktop environment. This is actually the easiest part of the project, and the time and resources spent at this stage will significantly improve your ability to provide a comprehensive solution later. Before starting any pilot, though, first clearly define its goals and scope. It’s all too easy during the pilot phase to shift the project’s scope and lose momentum as a result. What is your area of focus? Student resources, personal devices, learning centers, computer labs?

It makes sense to start small, too: A virtual desktop pilot of 20 to 30 seats can yield the same results as a 50- to 100-seat pilot without the same complications. If possible, try to test your pilot on infrastructure that mirrors your planned production environment—just on a smaller scale. This will help identify potential problems.

To ensure the long-term success of your virtualization effort, also be sure to involve all areas of your IT shop in the pilot. It’s the perfect time to identify and train key staff to support the production systems, and to include external experts alongside your IT staff. The knowledge gained by your staff will lead to improved support for your eventual production systems.

3) Set Expectations
While a pilot project can be more forgiving than a production environment, it is nevertheless critical to define your service levels early. Your final design will be based on these service levels. One advantage of all virtual desktop solutions is they are built on a virtual server/application platform, which has an inherent resiliency that can prevent major system failures.

To start, you need to identify the acceptable level of risk, or tolerance. How tolerant will your organization be if, during login, a “boot storm” brings the process to a crawl? What will happen if the core infrastructure fails and all systems go down? Will students or faculty still want to use virtual desktops if the systems are provide every opportunity possible for staff to develop the skills they will need.

By its very nature a pilot is of limited scope, so it’s important at this point to calculate the scale of the full project. In designing your final core infrastructure, the challenge is to determine what the number of your actual concurrent connections may be.

One final caution: While planning and testing are absolutely imperative, be careful not to over-pilot. If you spend too much time on pilots, the project can lose credibility.
THE WAIT IS OVER—A NEW RESOURCE FOR EDUCATION BUSINESS PROFESSIONALS

The newly re-imagined EDUCATION CHANNEL PARTNER NEWSLETTER AND WEBSITE has returned to help senior business executives, distributors, value-added resellers, channel managers, sales and marketing professionals and solution strategists improve the selling process and the products and services they offer to educational institutions.

Meet our expert contributors:

Jenny House, Ph.D., President and Principal, RedRock Reports
Julie Evans, CEO, Project Tomorrow
Larry Sugarman, Partner, Walkington/Sugarman Education Sales Advisors
Karen Billings, VP of Education, Software & Information Industry Association
Jeanne Hayes, President, The Hayes Connection
Tom Greaves, President, The Greaves Group

TRENDING ON EDUCATION CHANNEL PARTNER…

- 45-School Kansas District Swaps Out SIS for Web-Based System
- Privacy Concerns Drive Teens’ App Downloads and Usage
- Most Americans Have Never Heard of Common Core
- What’s on Teachers’ Professional Development Wish List?
- Report: Technology Integration Holds Steady with BYOD Set to Increase

Subscribe now to Education Channel Partner Newsletter
slow over a wireless connection? While there are deployment models that will reduce these risks, they will also impact the project cost.

Ultimately, your service levels for virtual desktops should be better than your current service levels for physical desktops. This can be achieved when your virtual desktop environment is designed around a dynamic desktop running on solid-state hardware.

4) Design for Success

When designing a virtual desktop environment, keep in mind these four key areas:

a) Network. The network will be a defining factor in your final design; if your network can’t deliver, your users will see a drop in quality. Constant monitoring of network performance during the pilot can help eliminate future issues. On a positive note, the demand placed on networks by virtual desktops has declined significantly in the last few years, due to the rapid adoption of mobility platforms along with virtual desktop performance tuning.

b) Architecture Models. In setting up a virtual desktop initiative, schools can choose from several deployment models, each with significant pros and cons:

- **Single infrastructure:** In this model, the infrastructure is deployed for a single function: desktop virtualization. The system can be split into segments — one for student computing, for instance, and another for administrative functions. While resiliency can be built into this design to address the failure of a hardware component, the impact of a total failure of the system would be significant. Simply put, if the virtual environment supporting 1,000 student desktops fails, it’s time to start polishing your résumé. To prevent this from happening, you must have highly skilled staff to monitor the systems along with virtual desktop/application performance. On the plus side, this model of deployment offers a lower cost of ownership than the private cloud model (see below).

- **Private cloud:** This model will significantly reduce your risks and allow you to mix the administrative and student virtual desktop resources with a high level of fault tolerance. The challenge to deploying this model is cost — and the need for facilities and experience. To deploy a private cloud, the core infrastructure must reside in two or more data centers, and the staff must have experience in balancing these cloud resources, which makes a private cloud a realistic option only for the largest districts or a consortium of districts. While the cost of a private cloud is higher, it’s certainly not double that of the single infrastructure model. In the event of a catastrophe, however, performance might be diminished but users would still have access.

- **Hybrid cloud:** This model utilizes virtual desktop endowments delivered via a hosted provider. It’s a relatively new approach and is typically priced on a per-desktop, per-month basis. Use of a hybrid model would alter your internal hardware needs while at the same time significantly impacting your network distribution and bandwidth requirements. While the hybrid model has gained some traction in certain industry sectors, it’s rare or unknown in the education sector other than in distance learning or specialized application training. One important proviso: While your school would not manage the core infrastructure under this model, if the service were to go down you would be at fault, not the provider.
c) Endpoint Devices. Establishing standards for the endpoints is just as important as the core infrastructure. Plus, sticking to these standards through the first phases of pilot and production will greatly simplify your project. These device standards establish a baseline for deployment based on the actual chipsets. In the last year, major breakthroughs have enhanced device and video performance. As with everything else, many options are available — including BYOD for students. The typical endpoint options are:

- **Client-access software**: Students and faculty use their own devices, provisioned via a software application.
- **Zero clients**: Also known as ultra-thin clients, these typically use an all-in-one solid-state approach that boots directly to the virtual desktop environment. These devices are also available without the all-in-one design.
- **Thin clients**: These are solid-state devices that have additional capabilities along with performance enhancements—video, local memory, and expansion bays. Many of the new zero clients are also adding these features.
- **Provisioning of existing desktops**: This approach uses existing hardware to boot directly to the virtual desktop environment. It’s a good way to extend the life of your district’s older desktops that might lack the resources to run newer operating systems or applications.

d) Backup Systems. Do not overlook the impact that a virtual desktop environment will have on your backup and recovery systems. Take the time to identify what will be backed up beyond the servers supporting virtual desktops. 

**Link Alander** is vice chancellor and CIO of Lone Star College System.

---

**VIRTUALIZATION**

**COMMUNICATING THE BENEFITS OF DESKTOP VIRTUALIZATION**

Every IT project, whether it’s desktop virtualization or mobile device management, should be closely aligned with your institution’s strategic goals. But in today’s educational IT environment — where too many projects are competing for too few resources—it’s a lot easier to get a green light if your initiative offers benefits above and beyond strategic alignment. And even then, it might not be enough. To increase your chances of success, it’s vital that you also develop a communication plan to build support for desktop virtualization. If you’ve done your job, all stakeholders should be fully aware of its potential benefits:

**Savings**: The ability to repurpose existing hardware with virtual desktops can extend the hardware lifecycle, while enabling the hardware to run applications or operating systems that it previously couldn’t. Due to the initial startup costs, however, these savings won’t be realized until the second or third year of the project.

**Upgrading the OS**: Everyone faces the challenge of upgrading operating systems. The migration from Windows XP to Windows 7 provided a great opportunity to move to virtual desktops, since many systems did not have the ability to run Windows 7. Now another opportunity has arrived with the migration to Windows 8.

**Mobility**: Mobility is a great opportunity that is often overlooked in virtual desktop projects. For starters, it’s a major selling point when you’re trying to secure buy-in: The ability for faculty, staff, and students to access their virtual desktop using multiple devices should not be underestimated. And don’t forget the cost savings that stem from reducing internal desktop resources as the focus shifts to support for student-owned devices.

**Desktop Security**: Compared with physical desktop computers, it is easier to secure virtual desktops and data.
SALES CONTACT INFORMATION

CHIEF REVENUE OFFICER
Wendy LaDuke
P (847) 265-1596
C (714) 743-4011
wladuke@1105media.com

WEST COAST SALES DIRECTOR
Mark D. Buchholz
C (714) 504-4915
mbuchholz@1105media.com

EASTERN REGION SALES MANAGER
M.F. Harmon
P (207) 883-2477
C (207) 650-6981
miharmon@1105media.com

CENTRAL REGION SALES MANAGER
Tom Creery
P (847) 358-7272
C (847) 971-5621
tcreery@1105media.com

SENIOR SALES ACCOUNT EXECUTIVE
Jean Delarobba
P (949) 265-1568
ddelarobba@1105media.com

SALES DIRECTOR, PUBLIC SECTOR EVENTS
Patrick Gallagher
C (817) 512-6574
pgallagher@1105media.com

MEDIA KITS
Direct your media kit requests to Emily Jacobs, (703) 876-5052 (phone), ejacobs@1105media.com

REPRINTS
For reprints, posters, plaques, and permissions, go to 1105reprints.com

LIST RENTALS
This publication’s subscriber list, as well as other lists from 1105 Media, Inc., is available for rental. For more information, please contact our list manager, Merit Direct: (914) 936-3800 (phone); 1105media@meritdirect.com; meritdirect.com/1105;

SUBSCRIPTIONS
For questions on subscriptions or circulation, contact Annette Levee, 512-301-2632 (phone); 512-301-3361 (fax); alevee@1105media.com