



Citrix solutions with Chromebooks: successes in education

The next generation of education is here to stay.

A demanding education climate

Today, K-12 school districts across the country are striving to meet the conflicting demands of innovation and thriftiness. At the same time they are expected to comply with national guidelines and produce leading-edge teaching and learning opportunities. Many also face frozen or reduced budgets and new constraints on personnel and resources.

Maine Township High School District 207

Location: Des Plaines, Ill.

Composition: Three high schools

Citrix products: XenApp, XenDesktop, Citrix Receiver for Chrome, and XenServer

Shelton Public Schools

Location: Shelton, Conn.

Composition: Five elementary schools, one upper elementary school, one intermediate school and one high school

Citrix products: XenApp, NetScaler application Delivery Controller

Nowhere is this more evident than with technology, which increasingly propels education at all levels. IT is one of the most continually evolving aspects of education, and innovations such as data mobility and bring-your-own-device (BYOD) capabilities have quickly rendered earlier IT paradigms obsolete.

These challenges don't just affect IT professionals and school leadership. They directly impact students' ability to learn and succeed.

Unsurprisingly, embracing new IT solutions brings new difficulties for implementation. Security in ephemeral data environments, for example, is an ever-moving target. The need to provide adequate access for students who don't have the means or support to fully embrace these new tools is urgent and daunting.

The stage is set for innovation. If districts successfully navigate this new educational territory, it will be because they turn to the latest evolutions in IT. To meet the demands placed

on them, some have already created new partnerships and embraced novel solutions.

This white paper explains how two districts are adapting and evolving education with Citrix.

Citrix in action

Two school districts 900 miles apart are using an array of Citrix products to create customized solutions to their unique challenges. Their experiences demonstrate not just technical successes, but also strong partnerships with key technology solution providers. The ongoing collaboration with Citrix and Google has made these efforts even more powerful and enabled the districts to serve their students and staff more effectively.

Integration with Google

In both of these case studies, the Citrix solutions were deployed using Chrome OS based devices such as Chromebooks and Chromeboxes. Each district uses Chromebooks as mobile, distributable platforms for important software and learning tools. Students can take the Chromebooks home and administrators can take them everywhere they go. The result is a consistent, user-friendly and simple interface that leverages Chrome OS and Citrix virtualization to securely bring Windows, web, SaaS and Google applications to students and administrators.

By purchasing Chromebooks for \$200 to \$300 each (instead of buying laptops and desktops for upward of \$1,000 each), the districts are able to reduce implementation costs and provide exponentially improved performance, industry-leading support and versatility.

The winning product lineup

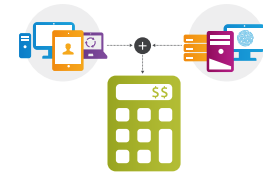
Shelton Public Schools and Maine Township have adopted a range of complementary Citrix IT solutions. This guide highlights these tools, both in terms of their standalone capabilities and their seamless compatibility as a family of products.



XenApp

XenApp is the industry-leading solution for streaming virtual applications to distributed devices anytime, anywhere. Organizations enjoy the security, simplicity and reduced costs of centralized installs and administration, along with the flexibility to offer applications on any device type. End users typically enjoy better-than-installed performance speeds on their personal and/or corporate-provided devices.

Learn more: www.citrix.com/xenapp



XenDesktop

XenDesktop is a best-in-class solution that delivers virtual desktops to any device. Users can remotely view and modify files and applications they have saved locally to their desktop system. This approach provides both the mobility of remote access and the continuity of using familiar desktop environments.

Learn more: www.citrix.com/xendesktop



Citrix Receiver

Citrix Receiver is an application that enables secure, virtualized access to apps and desktops through web browsers and other any device or platforms. Citrix has optimized Citrix Receiver for Chrome and works closely with Google to continually update features and capabilities to provide an enhanced user experience.

Learn more: www.citrix.com/go/receiver.html



NetScaler Application Delivery Controller
NetScaler is an all-in-one web application delivery controller (ADC) that optimizes, secures and controls the delivery of enterprise and cloud services across mobile and distributed devices. By proactively balancing loads across servers and ensuring consistent application availability, it maximizes the end-user experience and can provide five-fold performance increases.

Learn more: www.citrix.com/products/netscaler-application-delivery-controller/overview.html



All parts of the ambitious project were delivered on budget and on time.

Maine Township High School District 207 Des Plaines, Ill.

A plan for modernization

When airliners descend toward Chicago's O'Hare International Airport, passengers can look down at Maine Township High School District 207. Home to three high schools that serve 6,500 diverse students, the district has gained recognition from the U.S. Department of Education as one of the nation's top performers.

Still, it felt the same tensions as countless other schools around the country. Needs are substantial; budgets are not. Therefore, leaders looked to Citrix to help bring about modernization and efficiency by embracing the cloud and ubiquitous mobile use.

"Our vision was to create a web-based platform that can support any user device, now or in the future," says Henry Thiele, assistant superintendent of technology and learning.

Solutions for all

Following an extensive proof-of-concept exercise, Maine Township rolled out a Citrix solutions package with XenApp and XenDesktop as the primary solutions. Over the course of the implementation, the district was able to extend the system's capabilities to meet the requests of faculty and staff, expanding the project's impact and promoting uniform adoption throughout the schools.

All faculty eventually received new Chromebooks, and remote access to Google and Windows applications was available right away to all users, from their homes and mobile devices. The ease of the rollout has impressed many staff members. "The most common response to the new solution is, 'Wow, that was easy!'" reports Thiele.

Leveraging existing IT resources

The most lasting impacts of the program were not necessarily the most obvious ones. Taking advantage of the transferable skills of existing IT staff, for example, became a big win for district leaders and students.

"Instead of spending 85 percent of their time repairing desktop machines, the IT team can now focus on helping users improve their skills and achieve their classroom goals," says Jonathan Urbanski, network manager.

This change of focus is a common step as organizations of all types evolve toward a fully digital enterprise. No longer does it suffice for IT departments to be the "fixers and the installers"; they now need to be value-producers of a different sort. The fact that Maine Township was able to seize an opportunity that large corporations struggle with speaks to the perceptiveness of the district leadership and the nimbleness afforded by their partnership with Citrix.

"The Citrix team helped us quickly get the full environment up and running. It was an easy rollout, and the process couldn't have been any smoother."

Jonathan Urbanski

Network Manager, Maine Township High School District 207



How it works:

Users launch Citrix Receiver for Chrome to access applications and data that resides in the data center managed by Citrix XenApp and XenDesktop – anywhere, anytime.



Shelton Public School's budget savings over 10 years: \$1.2 million, of which 70 percent is directly attributable to XenApp.

Shelton Public Schools Shelton, Conn.

A need for access

Nestled along the Housatonic River in Connecticut, the Shelton School District serves a socioeconomically diverse group of students in eight schools. The community is in a period of transition – from a manufacturing hub to a professional and high-tech destination – which has brought newcomers with varied backgrounds to the city of 40,000.

At the outset of their partnership with Citrix, school administrators spoke of the need to “level the playing field” by providing access to under-resourced students who otherwise would not be able to use important technology. The necessity of this initiative in terms of equity and student success was obvious; the feasibility, however, was less clear.

Building a custom solution

The district found XenApp and Chromebooks to be a perfect fit. Using Chrome OS as a shell, users sign in to XenApp to securely access any software apps and data they need – effectively removing location as a barrier to access.

Director of Technology Daniel Divito orchestrated the transition, and he quickly saw that the XenApp with Chrome OS solution provided unprecedented versatility.

“Although teachers and students were adapting to the Google Chrome operating system,” he says, “they still missed the familiarity of a Windows-based operating system. That’s where XenApp comes into play. By partnering with both Chrome and XenApp, teachers and students can toggle back and forth.”

Another win for Divito and his team was that students – a generation for whom data mobility is normal and expected – could easily use their own devices, improving their experience and drastically decreasing hardware needs for the district.

“XenApp makes life a lot easier because it really does allow us to leverage students’ personal technology,” he says. “It’s saving the district funds and allowing the students to use something they’re already comfortable with; that’s a big plus for us.”

Enabling differential learning

Shelton Public Schools’ challenge was not limited to technology access in general; there were also specific curricular needs that needed to be met.

One of them was differentiated learning, the process by which teachers anticipate and adapt to disparate learning needs – either for individuals or for small groups of students. It is especially important in schools that serve students with broad socioeconomic diversity, since not all learners arrive with the same tools and support. The approach proactively provides the attention and customization needed to ensure success for all. It does, however, add complexity to the classroom.

The school district’s Citrix implementation nullified many of the typical problems with implementing differential learning. Whereas schools often suffer from a lack of computer stations – and software limitations in the stations they do have – the Chromebook setup provides everything teachers need. Furthermore, Chromeboxes – desktop versions of Chromebooks – were assembled as permanent stations in classrooms, making better use of class time and empowering teachers to make decisions based on student needs rather than resource availability.

“It’s now affordable for us to put five lab computers in the back of every classroom, when we could’ve only afforded two in the past. For a class of 20 students, that means a quarter of them can receive differentiated instruction at any given time.”

Daniel Divito

Director of Technology

A new learning paradigm

Today, Citrix IT solutions are empowering school districts to leverage distributed technology and modern best practices – all while maintaining security and control.

They do this by:

- **Providing anywhere access.** Citrix delivers secure access to instructional, collaborative, research and administrative resources, apps and data – on any device, anytime.
- **Lowering initial costs and total cost of ownership.** Desktop and mobile infrastructure costs are reduced by distributing and updating applications from a centralized server. This, combined with a low-cost, easily managed fleet of Chromebooks, can allow school districts all across the country to amplify IT cost savings.
- **Embracing BYOD.** Meeting students where they are technologically encourages large-scale adoption of district resources. Chromebooks are especially appealing to young learners, who consider them modern, attractive and relevant to their needs.
- **Fortifying security.** This IT setup protects privacy, helps ensure data and maintains compliance – all while providing high availability and almost limitless flexibility. Combined with Chromebooks or Chromeboxes – the most secure end point devices on the market – XenApp and XenDesktop provide students and IT administrators with an unmatched level of security.

Takeaways

Timing is everything.

For both the Township of Maine High School District 207 and Shelton School District, much was at stake. They had to modernize or risk falling behind, leaving students underserved. They also had to stay fiscally safe or would face additional budget constraints and setbacks. By virtually any metric, they succeeded.

A few commonalities in these development processes stand out:

- The flexibility of Citrix solutions empowered the districts to create solutions they really needed, when they needed them. The power and appeal of Chromebooks and Chromeboxes ensured high levels of user adoption to put these solutions to work.
- The Citrix virtualization and Chromebook solution has facilitated usage across distributed devices and created new efficiencies. “Instead of updating thousands of computers across the district,” says Urbanski, “my staff can now secure, update and patch devices from one single point of access.”
- District leaders achieved not just IT modernization, but also sustainability and scalability over the long term. Ten years from now, the Shelton School District will have saved \$1.2 million.
- In both cases, advancements grew from the need to provide the best possible education to young people. Ultimately, the students – not district budget officers – were the ones who benefited from these innovations the most.

Learn more about these and other Citrix IT solutions at www.citrix.com

Additional resources

Review the resources that follow to learn more about how Citrix is helping to transform education with desktop and application virtualization.

Web:

Citrix XenApp: www.citrix.com/xenapp

Citrix XenDesktop: www.citrix.com/xendesktop

Citrix and Google: www.citrix.com/global-partners/google/overview.html

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Hong Kong, China

Latin America Headquarters
Coral Gables, FL, USA

UK Development Center
Chalfont, United Kingdom



About Citrix

Citrix (NASDAQ:CTXS) is leading the transition to software – defining the workplace, and uniting virtualization, mobility management, networking and SaaS solutions to enable new ways for businesses and people to work better. Citrix solutions power business mobility through secure, mobile workspaces that provide people with instant access to apps, desktops, data and communications on any device, over any network and cloud. With annual revenue in 2014 of \$3.14 billion, Citrix solutions are in use at more than 400,000 organizations and by more than 100 million users globally. Learn more at www.citrix.com.

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