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## **Citrix Cloud Services**

**Helping America's educators better serve students by delivering a modern learning experience**

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See how three institutions increased IT speed, efficiency and flexibility to drive success for students and faculty in K12 to higher education.

As schools, universities and other institutions seek to offer fully modern educational experiences, Citrix Cloud services deliver a faster, more cost-effective way to provide access to virtual desktops, apps and data across campus and beyond, using any device over any network. A centralized environment simplifies management and data protection while helping IT deliver cost-effective resources to students, faculty and staff more quickly and efficiently than ever before.

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From kindergartens to post-graduate programs, the institutions best able to deliver on the promise of modern education are quickly becoming destinations of choice.

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## Delivering the future of education

Education at all levels is undergoing a profound transformation as new technologies enable new ways of teaching and learning. At leading institutions, students, teachers and staff are embracing more interactive, differentiated, non-linear and collaborative modes of instruction—provided with the help of mobile, device-independent resources within the classroom and beyond. From kindergartens to post-graduate programs, the institutions best able to deliver on the promise of modern education are quickly becoming destinations of choice.

As educational institutions seek to drive this evolution, however, they are often limited in what they could accomplish due to IT constraints. Budget and staffing restrictions make it difficult enough just to keep the lights on, much less innovate. Outdated apps and network infrastructure can't support the up-to-date resources and experiences students and staff expect. Sprawling facilities encompassing classrooms, buildings, campuses and satellite locations can make user and device management challenging.

Citrix Cloud services is breaking through the constraints of traditional campus IT. Educational institutions can enable innovative new instructional models for teachers, empower administrators more effectively, and deliver richer, more modern educational experiences for students—all while controlling costs.

## Transforming education IT with Citrix Cloud services

Citrix Cloud services simplify and accelerate the modernization of education by providing a single management plane to deliver and control complete IT resources—apps, virtual desktops, data, network security and mobility—as pre-integrated services with fast time to value.

- Citrix XenApp and XenDesktop Service enables apps and desktops to be virtualized, centralized and hosted in any public or private cloud you choose. Apps and desktops can be accessed using any kind of device—Mac or Windows PC, thin client, tablet, smartphone or even outdated endpoints.
- XenMobile Service provides enterprise mobility management, access control and data protection for tablets and other mobile devices.
- ShareFile lets people access data and collaborate on any device, from anywhere, while helping IT maintain security and compliance.
- NetScaler Gateway Service powers app delivery and cloud networking to help IT ensure a great performance for every user on every type of app, regardless of network conditions.

Citrix Cloud services can be deployed, activated and configured in hours, giving IT the agility to move quickly and efficiently to enable new initiatives. The unified management plane across services provides the most efficient way to deploy and manage Citrix technologies. Apps, desktops and data can be managed on any infrastructure, including on-premises, public cloud or private cloud, or on hybrid environments. Secure by design, Citrix Cloud services lets customers choose where apps, desktops and data reside. Citrix Cloud services is always up to date, eliminating the need to perform Citrix upgrades. Citrix even manages all patches and updates, freeing IT resources to focus on higher value activities.

Designed with the flexibility to fit any institution's IT strategy, we meet customers where they are in their journey to the cloud. Citrix Cloud services can provide a fast, simple start for institutions new to the cloud, or enable more efficient unified management across cloud services already in place alongside new and existing Citrix technologies. Institutions can even blend on-premises and cloud resources in a single, seamless hybrid management environment to optimally deploy each service and resource according to its own requirements and priorities.

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# Citrix Cloud services can help you break through the constraints of traditional campus IT.

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## How three institutions are using Citrix Cloud Services to improve education for students at every level

### Yale University increases access and flexibility at computer labs across campus

The labs provided by Yale University are highly valued by the students who use them—but their traditional architecture created endless headaches for students and staff alike. Locally stored data meant that students had to use the same computer every time, even if this meant waiting for it to become available while other machines were free. If that computer went down, the student's work could be lost. Meanwhile, a staff of a single full-time employee and 65 part-time student workers managed 1,000 Windows PCs and Macs in 92 different locations across two square miles on the downtown New Haven campus. Each computer had to be maintained manually at least once each year to clear its data and update locally installed software. "It was cumbersome and time-consuming, and only added to our constraints," says Eric Grenier, supervisor, Public Computing Services, Yale University.

A cloud-first commitment by Yale's CIO pointed to a solution. Grenier now uses XenApp and XenDesktop Service to deliver apps across all of the university's student labs; centralized, single-image management makes it simple to keep every computer's software up-to-date without the need to touch each machine. Google Drive integration with Citrix Cloud services has made it possible to eliminate local storage while enabling students to access their data on any computer. "We were trying to be more efficient by not having to reimagine every machine every year, but we ended up providing a new benefit to students. Wherever they sit, their data is right there," says John Pagliuca, interim CIO of Client Technology Services, Yale University. A more secure and consistently backed up environment protects student work from loss or theft. If a student needs to access an app on a given machine, a staff member can make it available in real time, not a week later.

The instant, frictionless scalability of the cloud helps Yale optimize capacity and cost by powering servers up and down based on demand patterns and load capacity. "We didn't want to be paying 24/7 for excess capacity, so that was a big value add, saving us money in the long run," says Pagliuca. Many PCs are now being replaced with thin clients, further reducing costs.

The success achieved with Citrix Cloud services in student computing labs has drawn the interest of faculty members, who are now driving similar grass-roots projects such as one in the Yale School of Public Health. "We're working on delivering a world class experience at a world class university without increasing headcount or having to secure additional budget," says Grenier.

### Crawford Central School District modernizes K12 education on a tight budget

The school district (CCSD) faced a challenge familiar to many institutions: meeting the needs of a new generation of learners while burdened with aging technology. Serving 3,800 students across a large, rural area in northwestern Pennsylvania, CCSD comprises five elementary schools, one middle school and two high schools. Its staff includes 300 teachers, 185 support personnel and 60 administrators.

With much of its technology 20 years out of date, CCSD was badly in need of a refresh to meet the needs of its community. A high proportion of its students were economically disadvantaged, and few had Internet access at home. They depended on CCSD schools to help close the digital divide and expand their options for higher education or skilled trades. "It became my mission to start improving the technology available in classrooms to help prepare students for today's world," says Becky Gentile, technology director, CCSD.

Coming from a corporate background, Gentile knew that IT transformation would help the district do more with less. Application virtualization was essential—but it required server resources beyond the district's existing datacenter, which was housed in a closet.

First, CCSD moved its servers to the Microsoft Azure cloud service under an Enrollment for Education Solutions (EES) agreement with Microsoft. In turn, Microsoft recommended Citrix Cloud services. The district now uses XenApp and XenDesktop Service for app and desktop delivery, and plans to add NetScaler Gateway Service to enable secure remote access for staff and students.

Citrix Cloud services have changed the way CCSD teachers and students think about what's possible. High-powered apps like CAD, Microsoft Visual Studio and Adobe Creative Suite, once limited to a single copy on a dedicated lab computer, can now be made available to students anywhere, and on any device. "It's expanding the boundaries of what we can do today. I've been excited to see people's reactions," says Gentile. More efficient centralized endpoint management makes it feasible to give students Windows 10 laptops so they can do homework on apps at home even if they don't have connectivity. Able to scale easily in minutes without having to add servers, CCSD can spin up new environments for English as a Second Language (ESL) and state testing, then discard them immediately afterwards to optimize cost. Flexible app and desktop delivery has expanded the toolbox available for special needs learners; personalized lesson plans are delivered side-by-side with standard curricula, so that each child receives tailored instruction and equitable access to technology without drawing peer attention to their learning differences.

"My goal is to make sure learning doesn't have any physical boundaries. Citrix is enabling that future for us," says Gentile. "It's important for K12 administrators to understand that this isn't difficult—you can do this—and the cost and flexibility benefits are tremendous."

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### Purdue University powers a state-of-the-art materials research facility

At the Purdue University Composites Manufacturing and Simulation Center (CMSC), staff and students work with industry, government and academic partners to develop simulation tools for modeling composite structures, such as the intricate parts used in the aerospace and automotive industries. "To attract the partners that are crucial to our research," says Brian Rohler, CMSC director of IT, "we need to provide easy access to the modeling and simulation workflows they need to get their jobs done and an easy way to share their work and collaborate, whether they're on campus, at home or working in corporate offices across the country or globe."

The CMSC had relied on a powerful Linux-based content management system developed by Purdue's HUBzero research group, but to meet the changing needs of its partners, it now needed a platform that could provide centralized data storage and access to Windows tools such as CAD/CAM and engineering software. The group now uses XenApp and XenDesktop Service, integrated with its existing Amazon Web Services

resources, for scalable, cost-effective delivery of Windows apps. The Citrix Cloud services management plane provides end-to-end encryption for enterprise security, while Citrix HDX technology ensures smooth streaming of very large graphics files, allowing CMSC staff and partners to share large files quickly and easily.

CSMC has noticed a marked difference in performance for the new Citrix-powered Composites Virtual Factory HUB, or cvfHUB. Says Rohler, "When I explained to a young engineer just starting to use cvfHUB that he could log in, start running a job, and then either minimize it and continue working or close his laptop and come back to it later without disrupting the process, he was amazed. This represents a huge leap in productivity when you consider that some jobs used to tie up machines for hours." The cloud-based system enabled the CMSC to ramp up quickly to take on new industry projects while providing its partners with easy access to the same content management system and on-demand Windows desktops that its staff and students use, ensuring seamless workflows.

IT has seen benefits as well. "I don't want to spend money or time having people run around server rooms finding failed hard drives or memory chips or power supplies. I'd much rather have our staff figuring out how to make cvfHUB function optimally as a collaboration environment for CMSC's community. Our Citrix Cloud solutions enable that," says David Benham, interim deployment manager at HUBzero.

Providing access to advanced tools and the chance to work with industry professionals on projects focusing on everything from auto parts to wind turbines, CMSC is highly attractive to the best engineering students. "If we aren't meeting students' expectations in these areas, they'll go elsewhere, and our research capabilities will suffer," says Rohler. With the help of Citrix Cloud, Purdue University is preparing its CMSC researchers to apply their skills to practical use across a wide swath of industries.

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### Summary

As new ways of teaching and learning promise to transform education, Citrix Cloud services enable institutions at all levels to provide modern experiences for students, faculty, and staff. Flexible, simple-to-deploy services enable secure mobile access to resources on any device, from anywhere, over any network. Whether institutions are new to the cloud or seeking to extend and enhance their ongoing cloud journey, Citrix Cloud services makes the future of education available and affordable today.

To learn more about Citrix Cloud for Education, please visit <https://www.citrix.com/solutions/education/>.



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