Your Hardware Shouldn't Limit Your Education: Leveling the Playing Field with Nutanix Xi Frame

by Robby Lynn Daniels

A small change can make a big difference. I see it all the time in education: A challenging assignment or a kind word from a professor can have tremendous impact on a student, causing them to rethink their goals or to embark on an unforeseen career path.

This concept is called the butterfly effect. It derives its name from Ray Bradbury's short story, *A Sound of Thunder*, about a time traveller who accidentally steps on a butterfly in prehistoric times and changes the future. A sci-fi classic, it is a cautionary tale about the unintended consequences of technology.

Fortunately, new tools often come with unexpected benefits, too. Part of my job is finding new ways that the students and faculty at Creighton University can use IT in their pursuit of academic excellence.

Cura Personalis

Creighton is a private Catholic university in Omaha, Nebraska, founded in 1878 by the Society of Jesus. Our 140-acre campus is home to 8,400 students and nine schools and colleges, including the College of Arts and Sciences, the School of Dentistry, the School of Law, and the Graduate School. We are committed to providing an education based on the Jesuit principles of ethical living, service to others, the search for truth, and a passion for justice. One of our mission statements is "*cura personalis*," which is Latin for "caring for the whole person."

> **Educating is more than teaching what's in books. #Education is about caring for the whole person. #NutanixStories**

I'm a client support specialist, which means my work is customer-facing. I started at Creighton in 2006 and was tasked with overseeing IT for our Development and Fundraising Division. Over the years, as the university expanded, I was assigned one of three physical zones that comprise the campus. I am now responsible for six buildings belonging to several divisions, including Development, Athletics, Marketing, Facilities, and Public Safety.

I'm in charge of the eastern section of our campus, and my two colleagues watch over the central and western zones. This division of labor was to bridge the gap between IT and our users. By dividing and conquering, we can take care of more issues in less time. We also have gotten to know the business requirements of the departments and schools we serve more intimately, so we can supply them with the right technology.

Despite our divide-and-conquer approach, there is some overlap. Each of us support specialists also serve as the secondary IT person at one of the adjacent zones. In 2017, I had the pleasure

of helping my colleague at our Heider College of Business with a platform upgrade. We were using Microsoft RemoteApp, but that product was being retired. Although that was a singular instance, it gave us an opportunity to rethink our entire IT environment.

Providing Equal Access to IT Tools

One of our biggest challenges was providing staff and students with equal access to the tools they need—regardless of the device they're using. At Heider, this meant giving them the ability to use power-hungry apps like SAS 9.4 and SPSS that require more storage capacity and processing power than most people have on their personal computers.

We also wanted to free our professors from having to troubleshoot these very same apps. Like students, faculty members may not have the latest and greatest laptop—or the most recent version of an operating system—and getting everything to work well often caused frustration and multiple calls to our tech support department.

> **Staff and #students have to be given equal access to the #IT tools they need—regardless of the device they're using. #NutanixStories**

One of the purposes of reconsidering our IT infrastructure was to give faculty a way to plan coursework or alter a syllabus without having to worry about technical constraints. It was also an occasion to rethink distance learning by looking at the barriers that prevented students from attending classes and using lab equipment remotely.

From the onset, it was clear we'd find the answer in the cloud, but an initial survey of our options proved fruitless. Microsoft Azure was far too complicated, and our legal department had reservations about using Google. We also considered moving our in-house remote apps solution off-prem, but we couldn't scale it.

When we looked at Xi Frame from Nutanix, we finally found the scalability and elasticity to implement our vision. Nutanix Xi Frame is a desktop-as-a-service (DaaS) platform that allows users to access desktop apps from any device equipped with a browser. Think of it as a new take on traditional client-server architecture that is hardware agnostic, flexible, and resides on the cloud. It was exactly what we needed.

Working with a Blank Canvas

Nutanix Xi Frame felt like a blank canvas. We could map out the future of Creighton's IT without having to rip out our existing infrastructure. It also offered a way to bring the campus to our students instead of asking them to come to us. Our faculty could be anywhere, too. A professor at a conference in Hawaii could remotely lecture their students here in Omaha, accept and grade their papers, and upload assignments for them.

We started building our Xi Frame platform and rolled it out at Haider Business College in the Winter 2017 semester. The first goal was to facilitate distance learning for our business intelligence and analytics (BIA) classes. We enrolled a cohort of 35 students in that first remote offering and have been adding more participants every semester.

As our students and teachers embraced the potential of Xi Frame, we kept increasing its capacity to accommodate offsite learners and to provide access to more robust applications and bigger databases. We did all this without investing in any new hardware. Xi Frame runs workstation-grade apps at full power on any browser. We even tested it on an ancient Chromebook, and performed just as well as on a brand new desktop.

Deploying Xi Frame Across Campus

In the summer of 2018, our College of Arts and Sciences came to us with a request to upgrade its computer labs and to enhance its remote learning capacity—all before the start of the fall semester. We simply cloned the architecture of our business school platform, but removed applications they weren't teaching, such as SPSS and Visual Studio.

Thanks to Nutanix Xi Frame, we had a lot less work to do. Instead of having to provision and maintain and refresh hundreds of lab computers, we are managing user accounts and applications instead. We have embedded engineers at both Haider and the Arts and Sciences buildings who handle account management, while the desktop engineering group takes care of the application platform.

The desktop engineering team is responsible for architecting and pushing out platform builds and upgrades, making sure that students and faculty have the horsepower they need for their coursework. It's a collaborative process, and we receive continual feedback from our professors to ensure that we have met their requirements and that everything is working correctly.

Next, we did a proof of concept for our School of Dentistry, which has 150 chairs and about 400 machines. Students there use the axiUm Dental Software and the MiPACS Dental Enterprise Solution to manage appointments, consult dental records, and update patient files. In the past, we needed a team of six engineers to update all these machines individually over three weeks during a summer break. We moved the school's entire operations to the on-prem version of Nutanix Xi Frame and can now update all of the workstations from a single master in about an hour.

Whether they're on campus or doing an internship at a local clinic, students can now log in to their axiUM or MiPACS account from any computer or mobile device and use all the features these platforms offer.

Leveling the Playing Field

There are many benefits to Nutanix Xi Frame. It has leveled the playing field. Any student or faculty member can log in to a lab computer or their personal device of choice and have the

same user experience as they would on a workstation or server-class machine, even with modest hardware. Everyone has access to high-powered applications and a high-quality learning environment 24/7. Students no longer have to plan their schedule around campus computer room hours because they lack the resources needed to complete an assignment.

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We are also saving a lot of money by eliminating the need for many of our on-site computer labs. Instead of spending $750 per workstation to equip a 25-student classroom at our College of Arts and Sciences, we are spending $30 a month for each Nutanix Xi Frame licence. We are also repurposing the space these labs once occupied for other learning activities, and faculty members are excited about those possibilities.

Feedback from faculty and learners has been extremely encouraging. Professors can embed more content—like scientific applications, industry directories, and research databases—into their courses. Students have access to better tools to plan their academic and extracurricular activities, and learners can access resources that were previously only available on campus.

The Creighton Spirit Soldiers On

Of course, everything is remote right now, but even though the campus has closed, the Creighton spirit soldiers on. Our students and professors have taken to Nutanix Xi Frame, and its adoption rate has skyrocketed. If we hadn't moved to a cloud-based solution when we did, we couldn't have continued to offer learners a seamless educational experience during this shutdown.

I really believe in *cura personalis*. I see it all around me at Creighton, both on campus and off. In this time of crisis, caring for the whole person means reaching out to ensure the wellbeing of every member of the university community, no matter where they are.

Nutanix Xi Frame was a seemingly small change from an IT perspective that has had a ripple effect on the lives of faculty, staff, and students both on and off campus. It wasn't part of our plan, but I'm proud that our IT team is playing a role in helping everyone at Creighton University pursue academic excellence. If we can continue to be of service to others as we navigate this challenging path, then we're doing the right thing.