

## University of Waterloo Chooses Nutanix for New VDI Deployment.

*Web-Scale Converged Infrastructure Simplifies Administration, Provides Easy Scalability, and Improves User Experience for Large University Library System.*

### The University of Waterloo

A research powerhouse and the engine of a leading startup ecosystem, Waterloo offers the world's largest co-operative education program, a uniquely entrepreneurial culture and a dynamic learning environment for 36,000 undergraduate and graduate students. Championing innovation and collaboration, Waterloo builds a better future for Canada and the world.

Adam Savage is a systems administrator for the University of Waterloo's main campus library. He is responsible for most server infrastructure, including compute, storage, networking, and best practices. "I write the standards for our OS hardening, architect new solutions for our data center, and am responsible for backup and recovery," he explained.

### Why Nutanix

University of Waterloo recently migrated the library's physical desktops to a virtual desktop infrastructure using VMware Horizon View. "We made the decision to implement virtual desktops for all of our library patrons," noted Savage. "From doing our research and talking to our colleagues, we realized that storage was the main bottleneck—the performance killer—of VDI in most organizations. We began our search by evaluating several hyper-converged storage and server vendors, as well as some of the traditional three-tier architectures."

After reviewing the alternatives, the University chose Nutanix for its upcoming VDI project. "We chose Nutanix because they made a very convincing case against the 3-tier architectures," Savage explained. "What sold it for me was Nutanix's data locality concept—how each physical VMware ESXi host has its own Nutanix controller VM on it. With the Nutanix approach, you don't have to go to the network to write to disk. Every write is local and all the network is used for is copies of data. As a result, VDI performance isn't based on network performance. And with Nutanix's SSD caching the data, we are taking advantage of the hybrid approach. The Nutanix systems deliver fast SSD performance along with cost-effective spinning disk capacity."

**“With its great performance and easy scalability, Nutanix was the only viable solution for our new VDI deployment.”**

– Adam Savage, Systems Administrator, University of Waterloo

UNIVERSITY OF  
**WATERLOO**



### Industry

Higher Education.

### Business Needs

Needed a robust storage platform for library VDI implementation.

### Solution

The Nutanix Virtual Computing Platform.

### Benefits

- Drastically reduced administrative time and expenses.
- Improved user satisfaction with faster access to applications and smaller zero clients.
- Enabled the launch of new VDI project in manageable stages, due to Nutanix's easy scalability.



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## Running the POC

The University Library's IT infrastructure team ran a POC on a Nutanix 1350 demo system. "The 1350 was smaller than the system we ended up buying, but it still was able to handle our test workload perfectly," Savage said. "We also didn't have our 10 GBE network infrastructure installed during the POC. We tested the Nutanix system on one of our largest test cases, which was loading our mapping software. This application would normally kill our old i7 desktop processors. So we ran about 15 of these processes at the same time, along with 20 desktops running dual-screen YouTube videos. We thought that this load was surely going to cause a performance bottleneck. But the Nutanix system just screamed along. We didn't even see a hint of performance degradation on the 1350 system, even with just one gig Ethernet."

## Deploying the New System

After the very successful POC, the University awarded an RFP for the Nutanix 3360 system for its new library VDI project. "We received the unit at our main datacenter and in just half an hour we were up and running," Savage reported. "We played around with VMware View for a while, because it was the only piece of the new environment that needed any attention. The hyper-converged system ran so well that we actually forgot that we had a Nutanix box in the background."

## Partnering with Zycom Technology

University of Waterloo hired Zycom Technology, an IT solutions provider and Nutanix Partner, for its new VDI implementation. "The University asked us to do a VDI use-case analysis to ascertain the viability of VDI as a new delivery model for desktop computing," explained Terry Buchanan, vice president technology and general manager of Zycom, the 2014 Nutanix Channel Partner of the Year for Canada.

"All of our sizing was based on the POC using the 1350 for the proof of concept," he reported. "Nutanix's sizing capabilities enabled us to easily 'hit the target' for the initial infrastructure. Nutanix is pretty much all we use for customer POCs anymore, whether it be Citrix or VMware Horizon View. We can get a Nutanix POC up to speed in just a couple of hours, enabling us to perform pressure testing and load testing on the VDI environments very quickly. It's almost the same as having lights-out management, the Nutanix environment just works on its own without our intervention."

## Reduction in Administrative Time

Life is much simpler now for the University Library's IT team, according to Savage. "Managing those 200 physical desktops was so costly and cumbersome that we only upgraded the images and put in new software packages for students once per term. We used to have to touch every single PC to do the upgrades. We used the Symantec GhostCast solution, but it can only handle about 20 physical desktops at a time. Of course not all of them would connect, so our team would have to go check out each machine and determine if it was connecting to the GhostCast instance, then check out the image to make sure it was applied properly. If not, it would have to be reimaged because something went wrong during the process. And finally, every desktop needed to be tested after the changes. It really was a really lengthy and inefficient process. With Nutanix, the reduction in administrative time is so huge, it's almost 100%."

With Nutanix and the VMware Horizon View infrastructure, the University Library's IT team can now perform upgrades and maintenance on the fly. "We don't have to wait to add a new piece of software or take advantage of any new application features that would require a change in the base image," said Savage. "We can now make sure our users have access to the most up to date software and applications at all times."

## Happy End Users

The virtual desktop systems are now being used by the University's students and faculty. And since the University of Waterloo library is open to the public, anyone can come in and use the virtual desktop systems to access the library's extensive catalog of books, videos, and other on-line resources.

The response to new environment has been overwhelmingly positive. "We ran a survey across all desktop users and received over 100 responses," noted Savage. "At the beginning of the survey, we received a few negative responses, but they were mostly requesting 'tweaks' or modifications to the image—the comments weren't due to VMware or Nutanix's performance whatsoever. Once we made those improvements, the responses have been over 95% positive. We asked respondents how the speed of the new implementation compared to the previous desktops and everyone agreed that the new environment is much faster."

The virtual desktops and zero clients are also much smaller than the old physical laptops. "We are using HP t310s zero clients," Savage explained. "The smaller systems have given the students a lot of desk real estate back. We are receiving overwhelmingly positive comments about how much extra space they have to work in now. They can spread out their papers, textbooks, and notebooks across their desks, and they still have room to use the keyboard and mouse with the zero client systems."

## Expanding the VDI Project

"We originally implemented Nutanix to replace 200 physical desktops in our campus library," said Savage. "The Nutanix systems worked so well that we found that we had some extra capacity. As a result, we were able to deploy 25 more desktops than we had originally planned for, without needing to upgrade or buy any additional hardware."

Since virtualizing the public computing infrastructure was such a success in the library, the University Library is now planning on a second phase of the project, to test and implement virtualization of all of its staff desktops, adding another 200 VDI users to the environment. The University Library is planning to purchase one or two more Nutanix nodes to accommodate those desktops, with extra room for future growth. "Nutanix provides the ability to easily grow our environment," Savage concluded. "We didn't have to buy all of the capacity we needed for 450 desktops up front—we were able to launch 225 desktops for our public use-case first. With most other vendors, especially the three-tier solutions, we would have to buy everything up front at a much greater cost. With Nutanix, we can just buy another node and attach it to the existing infrastructure. Without the ability to launch our desktops in stages, I don't think we would have gotten the budget approval to start this project. With its great performance and easy scalability, Nutanix was the only viable solution for our new VDI deployment."



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