CASE STUDY

William Woods University Switches to Tintri to Eliminate Storage Latency and Increase IOPS for Campus-Wide VDI Deployment

"Not a single storage solution could outperform Tintri in any aspect of our POC. Tintri left all of the other storage vendors in the dust."

William Woods University (WWU) is an independent, private university located in Fulton, Missouri. As a relatively small educational institution, WWU's IT team is required to do 'big things' on a very small technology budget. Steven Goodson is a network support manager for the University. He and nine other IT team members are responsible for supporting the University's 350 faculty and staff, 1,000 undergraduate students, and up to 3,000 graduate students at the main campus in Fulton and two satellite campus locations.

Starting the VDI Journey

WWU started its virtual desktop journey by migrating its student labs and classrooms to VDI in 2013. "When implementing a new IT initiative, we often have to sell the merits of the new solution to our constituents who aren't familiar with the technology," Goodson said. They do understand ROI and the concept that 'time is money'. So demonstrating the financial gains first is always a good idea."

With its traditional PC-based environment, the WWU IT team supported applications that couldn't be automatically scripted for updates. This meant that one of the University's admins had to go out and physically update each new application on over 350 desktops. Since it took about 10 minutes to update each individual desktop, the entire process took well over 50 hours.

WWU launched its VDI project in 2013 with VMware Horizon, Dell Wyse Zero Clients, and Unidesk Virtual Desktop Management Software. With its new VDI deployment, Goodson and his team only have to perform the update once and all of the University's virtual desktops are good to go. "The possibility of freeing up nearly 50 hours of admin time for each update opened up our CFO's eyes very quickly," noted Goodson. "With the extra time we are saving with virtual desktops, we can now tackle more strategic projects, like updating our campus Wi-Fi presence, rather than just reacting to tasks as simple as application updates. That operational savings made our IT director and CFO very happy."

Choosing Tintri

Although the first phase of the virtual desktop project was successful, performance was an issue for the persistent desktop deployment. "We originally deployed VMware Horizon on Dell EqualLogic storage, but we weren't getting the IOPS we needed out of that environment," Goodson admitted. "We knew we needed a more robust storage environment before we expanded the VDI footprint."

Goodson and his team decided to test six different storage platforms to find the best solution for the VMware desktops. In addition to traditional SAN storage, they also looked at pure flash vendors, but those solutions were not possible with the University's IT budget. "Not a

Industry
- Education

Geography
- Fulton, Missouri

Website
- www.williamwoods.edu

Virtualization environment
- VMware Horizon (with View)
- VMware vSphere 5.5
- Dell Wyse Zero Clients for VMware High-Performance Virtual Desktops (Teradici)
- Unidesk Virtual Desktop Management Software
- Storage Prior to Tintri: Dell EqualLogic

VM profile
- OS: Windows 7 Enterprise
- Applications: Numerous Microsoft apps including Office 2013, Visio, Web Expressions, Visual Studio and SQL. IBM SPSS, MATLAB, Quickbooks, Adobe CS6, Adobe Acrobat, ImageJ, Gimp, Jenzabar, Infomaker, PowerFaids, EdConnect, EdExpress

Key Challenges
- Experiencing latency in the existing VDI environment
- Traditional storage could not provide sufficient IOPS
- High maintenance of PCs
- Desktops required too much power

Tintri solution
- Tintri T540

Primary use case
- Providing virtual desktops to >4,000 students, faculty, and staff members

Business benefits
- Eliminated latency in VDI
- Cut time to update applications from 50 hours to 10 minutes
- Reduced power by 95%
- Saved Capex and Opex by moving to Tintri

single storage solution could outperform Tintri in any aspect of our POC," Goodson explained. "Tintri left all of the other storage vendors in the dust." William Woods University then purchased a single Tintri T540, for its VMware VDI environment.

Faster Deployment and Simpler Management

"The old EqualLogic arrays required a lot of babysitting," noted Goodson. "While some people may like spending hours configuring and managing LUNs, I have better things to do with my time. When we first brought Tintri in, no joke, it took just 36 seconds to configure. That's just crazy. All of the other vendors' solutions took a minimum of two hours before we could even begin testing. Tintri is so easy to manage that even my interns can update the Tintri arrays! I wouldn't even think of letting my interns touch the EqualLogic. It's far too complex -- basically an '800 pound gorilla', to tell you the truth."

"Every administrative task with Tintri takes half the time of all other platforms, including desktop creation, modification, and rebuilds," noted Goodson. "Boot storms are not an issue and the performance gains are impeccable. We are now fully populated on Tintri, fully virtualized, and we are still seeing 100% flash hits. We aren't even coming close to the set limit on IOPS. When our customers tells us that their desktops are much faster, that says a lot. It's usually just the IT team that notices the improvements. Tintri simply revolutionizes performance at the desktop."

Providing Anytime, Anywhere Desktop Access

Before implementing the virtual desktops, University students and staff had to go to physical classrooms or computer labs to complete their homework assignments or job duties. By provisioning virtual desktops with VMware Horizon, the University's end users now have the ability to work from anywhere they choose at any time. All they need is an Internet connection and a device that supports the VMware Horizon client – which essentially all devices do – to access their virtual desktops to complete assignments, perform administrative duties, and conduct research.

With Tintri and the new VMware virtual desktops, WWU students don't have to purchase their own software anymore – helping to keep the college debt load down for students and their families.

Supporting BYOD and Going Green

Goodson noted that the 'typical' university student arrives on campus with at least three or four different devices. "Students bring their laptops, tablets, smartphones, MP3 players, and all kinds of other platforms to college," Goodson noted. "VMware and Tintri are enabling us to meet the computing needs of all of our students – as well as our faculty and staff – no matter what mobile device they choose to use. We had a student arrive at the University last year with just an iPad," Goodson related. "It's really hard to get your classwork done when you only have a tablet and no PC. This was the first student that was given VDI access from outside the campus. With Tintri and his VMware Horizon virtual desktop, he was able to access all of the programs he needed to complete his coursework remotely – using just his iPad."

Tintri and VMware also helped Goodson support the University's 'Green' initiative. The Dell Zero Clients use just 3 to 5 watts per desktop, compared to 120 watts for each of the traditional PCs. This equates to a 95% reduction in power consumption for the University computer labs.

Lessons Learned

"The most valuable lesson I learned in our VDI implementation is to choose the storage platform very carefully," Goodson shared. "Our EqualLogic SAN was identified as the biggest bottleneck in our initial VDI deployment. One of the best decisions we made was switching to Tintri storage. It completely eliminated the latency in our VDI deployment. Tintri is an outstanding product, from deployment to support. It actually took longer to mount in the rack, than to configure the Tintri storage."

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> **—Steven Goodson, Network Support Manager, William Woods University**

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