UMASS LOWELL EXTENDS STEM EDUCATION WITH DIGITAL WORKSPACES

INDUSTRY
EDUCATION

LOCATION
LOWELL, MASSACHUSETTS

KEY CHALLENGES
- Fast-growing campus needed to reclaim campus space from traditional computer labs and improve student and faculty access to academic software
- Nontraditional students needed simpler access to apps and desktops from any place at any time

SOLUTION
UMass Lowell is extending digital workspace solutions to faculty, staff and students that simplify app access through VMware App Volumes and provide virtual desktops through VMware Horizon.

BUSINESS BENEFITS
- Students can use campus computing resources whenever and wherever it's most convenient for them
- Faculty research in the field is more productive with access to software from any device
- Workflows for campus management, from security to HVAC, are streamlined with mobile access to apps

Digital workspace solutions are leveling the playing field in education from elementary to graduate schools. When the processing power and licensing for educational software lies in the data center instead of the endpoint, students can learn at any time and any place on their own easy-to-use digital devices. The University of Massachusetts Lowell is taking advantage of these trends to increase the reach of science, technology, engineering and math (STEM) software. These consumer-simple experiences, combined with enterprise-class security, enable a great educational and working environment for students, faculty and staff.

The University of Massachusetts consists of five campuses, including the University of Massachusetts Lowell. Known as UMass Lowell, this national research university offers its more than 17,750 students bachelor's, master's and doctoral degrees in business, education, engineering, fine arts, health, humanities, sciences and social sciences. The university is among the top 200 research universities in the United States and recently ranked 13th for intellectual property generated.

The Challenge

UMass Lowell is following a strategic plan for growth that calls for them to serve 20,000 students by the year 2020 – up from 11,000 in 2007. The school is known for science and technology education, and for providing high quality academics at an affordable cost. Technology plays a large role in education and on the campus as a whole.

A VMware vSphere® customer since 2005, the school's desktop virtualization journey began in 2013 during a period of new construction. According to Steve Athanas, Director of Platforms and Systems Engineering, the school was "Bursting at the seams. We were constructing more buildings, but they take a while to come online and they are also expensive." UMass Lowell needed to find a way to reclaim classroom space to teach its growing student body. According to Athanas, "VDI for us started as a way to turn computer labs back into usable teaching space. But it turned out to be significantly more than that. Our VDI story is about fundamentally transforming the way we teach and the way we conduct business."

The Solution

Collaboration and the ability to work from anywhere are ingrained in the study and work habits of young digital natives. UMass Lowell embraced these developments by supporting mobile workflows and the ability to

vmware®

access any app at any time. "Any employee or student anywhere across the globe can access our VDI environment and access a whole host of applications to help them do their academic work," said Athanas.

UMass Lowell uses VMware Horizon® for virtual desktops, VMware User Environment Manager™ for end-user profile management and VMware App Volumes™ to distribute applications. Through a portal called vLabs, UMass Lowell users can access university virtual desktops and apps from anywhere at any time, on any device. Because the Horizon virtual desktops are non-persistent, users are presented with a fresh image each time they log in. Software is updated automatically without the need for users' input, and the risk of spreading computer viruses or malware is greatly diminished because each desktop instance is destroyed when a user logsout. If a faculty or staff member needs more customization, persistent desktops are available. The combination of Horizon and App Volumes provides the economic benefits of non-persistent desktops with the performance and personalization of persistent desktops.

The university uses App Volumes to provide apps to students and faculty based on their role. App Volumes enables multiple Horizon virtual desktops to sit on top of a single pool of applications. User Environment Manager maintains application settings across sessions, so users don't have to adjust their settings each time they log in. User Environment Manageralso makes it simple for end users to fix any errors in app configuration without submitting a help desk ticket.

According to Athanas, App Volumes and User Environment Manager greatly simplify app access. "Now, based on a user's enrollment in a class, we put people into different security groups in Active Directory. You get biology apps if you're enrolled in a biology class, for example, and business apps if you have a business class – and if you're enrolled in both classes you get both sets of apps with a single login. All your applications are right there in front of you when you need them, and you don't have to think about where to go to access different apps." Athanas notes that these solutions also streamline research work for faculty. "Professors can go out into the field to do research, then whatever calculations or simulations they need to run, they can do it right there. They don't need to come back to campus."

UMass Lowell recently launched a high-performance Horizon cluster with virtual graphics processing units (GPUs) from VMware technology partner NVIDIA. Computationally and graphics-intensive design and engineering programsnow run on any student or faculty device that can run a Horizon desktop. The university no longer has to invest in and maintain high-performance workstations. Because the processing power resides in the data center and not at the endpoint, these applications can run smoothly on a variety of devices. The university has added additional NVIDIA GPU support to its base image to support the graphical look and feel of a Windows 10 deployment.

Athanas also cited VMware partner StacksWare as a critical addition to his IT arsenal. StacksWare metrics for App Volumes deployments provide real time deep inspection of application usage. Said Athanas, "This software can tell me right now which users on campus are using which applications, where they're using them from and how long they're using them. I can roll all that up and make better decisions about software licenses for the campus. It's been really transformative for us."

"The way that VMware is simplifying app distribution is really huge. It means my team spends less time setting up and more time working with our ultimate customers, delivering value to the organization."

STEVE ATHANAS
DIRECTOR OF PLATFORMS AND
SYSTEMS ENGINEERING
UMASS LOWELL

VMWARE FOOTPRINT

• VMware App Volumes

• VMware Horizon

• VMware User Environment Manager

Business Results & Benefits

VMware solutions help UMass Lowell students balance education with everything else they do. According to Athanas, "once students realized they were able to access their applications anytime and anywhere, it changed how they functioned as students." Instead of having to log time in an on-campus computer lab, students could bring a mobile device with them and study whenever it's convenient. "That's really important because a huge percentage of our students have either full-time or part-time jobs as they're achieving their education," said Athanas.

Virtualization has specific and important benefits for faculty. Athanas cites an example of a statistics professor who used the same teaching model for many years: Lecture for three or four weeks, then reserve a computer lab so students could use statistics software. "A lot of students missed the lab or were very late because they had other commitments," said Athanas. "There was a huge time gap between hearing the professor's lesson and seeing it modeled in software. Now it's a matter of seconds between when she teaches a concept and when the students can put it into practice." The professor lectures for part of the class time, then all the students pull out their mobile devices. "They log into Horizon and use the apps right there. The professor walks around and works with them. It's made a big difference to student success and retention."

Athanas also discussed several examples of how Horizon VDI makes day-to-day campus life simpler and easier. Campus police, for example, no longer have to return to their building to write up incident reports. "We put iPads and mobile hotspots in each cruiser. They can write reports in the car, or print a report at the station building from the police cruiser. This allows them to spend more time on patrol, making sure our campus is a safe place." Campus personnel can use mobile devices to check the feed from a building camera, instead of adjusting the camera and then traveling to an office to see the feed - and then potentially traveling back to the camera to adjust it again. In a similar way, maintenance staff use mobile devices to adjust environmental conditions in buildings without returning to a central office.

For his IT team, Athanas notes that Horizon and App Volumes save time and resources for his team. Three people manage the VDI and apps for the entire campus. "The way that VMware is simplifying app distribution is really huge," said Athanas. "It means my team spends less time setting up and more time working with our ultimate customers, delivering value to the organization."

Looking Ahead

After a semester of using Horizon and App Volumes, Athanas' team surveyed students about their experiences with the vLabs portal. When the votes were in, 66 percent of students said that vLabs improved their academic success. Athanas marveled that "I've been doing higher-ed IT for over a dozen years. We've never even come close to that kind of transformational impact on our students."

Athanas noted that now that students are no longer expected to come back to campus to do their work, the effect has been transformative. "We have a number of non-traditional students. They might be single parents or working full-time, trying to get a degree. By letting them do their work from wherever they choose, they can spend more time with their families or more time in the office instead of being tied to a computer lab. That helps improve their life and career. Any time you can help students do their job, that's what you're supposed to be doing in IT. That's what we're here for, that's our mission, that's our goal.

vmware®