



UNIVERSITY OF SOUTH CAROLINA UPSTATE SUPPORTS STUDENT SUCCESS WITH VMWARE TECHNOLOGY

UPSTATE

University of South Carolina Upstate

INDUSTRY EDUCATION

LOCATION SPARTANBURG, SOUTH CAROLINA

KEY CHALLENGES

- The university wanted to better serve every student, including its non-traditional, off-campus students
- Needed to modernize computing and storage infrastructure to support more online initiatives and faster, simpler access to course software

SOLUTION

- VMware Horizon and VMware App Volumes power Spartan GreenSky, the university's secure digital workspace for faculty, staff and students
- VMware vSAN all-flash storage is the hyper-converged storage platform

BUSINESS BENEFITS

- University community can study and work from any place, at any time, on the device of their choice in a USC Upstate-branded digital workspace
- IT staff saves time and resources by using virtual desktops while users enjoy fast performance

To meet the challenges of online and on-demand education, the University of South Carolina Upstate turned to VMware for solutions. VMware Horizon® and VMware App Volumes™ help the university modernize their computing infrastructure and offer secure digital workspaces to all faculty, students and staff. VMware vSAN™ provides faster access with an all-flash hyper-converged storage solution that integrates natively with the VMware software stack. The university community now can access the computing tools they need for academic success at any time, in any place.

Located in Spartanburg, the University of South Carolina Upstate has about 6,000 students. Many of these are non-traditional students who are already working or supporting families, commuter students who don't live on campus, or are first-generation college students. USC Upstate is a metropolitan university, meaning that their mission is primarily to serve the needs of the region. The school offers bachelor's degree programs in liberal arts, sciences, business administration, nursing and teacher education and Master's degree programs in education, nursing and informatics.

The Challenge

Online and mobile-ready initiatives are here to stay in education. To implement them properly requires new thinking about technology. USC Upstate's first challenge was aging equipment and not enough of it. "We started looking at virtual desktop infrastructure because of constraints on space and physical machines in labs," said Kevin Hodges, VDI systems administrator at USC Upstate. "Every department wanted more machines in their lab or a new lab to provide students the software, experience and availability they needed" for classes. But because of older hardware and limited IT staff, "We kept having to tell folks no," said Luke VanWingerden, director of ITS client services. "No, we can't update the lab right now, we can't provide the software you want." Hodges also noted that the university had to buy multiple software licenses for each computer on campus, even though they weren't sure how many people would be using that software.

A second challenge was that the majority of the university's students don't live on campus. "We have many non-traditional students, students who are working, who have families, all of whom are trying to further their careers and their lives by getting an education here," said senior vice chancellor for academic affairs Clif Flynn. It can be difficult for these students to be in a physical computer lab at a specific time during the day.

“VMware technology has enabled us to improve and increase services to students at no additional cost. Those saved funds make it possible for us to provide other services, academic and support services, that we otherwise wouldn’t be able to provide. For other universities who may be contemplating similar changes – I would strongly encourage them to do so.”

CLIF FLYNN
SENIOR VICE CHANCELLOR
ACADEMIC AFFAIRS
UNIVERSITY OF SOUTH CAROLINA UPSTATE

VMWARE FOOTPRINT

- VMware App Volumes
- VMware Horizon
- VMware vSAN

The Solution

USC Upstate began its journey with VMware with a 24-VM pilot in 2009. Today, VMware Horizon, App Volumes and vSAN enable a campus-wide service called Spartan GreenSky. From a variety of devices, students, faculty and staff can use their email, files and course-required software from anywhere they have Internet access. These secure digital workspaces are delivered by Horizon. “If someone needs a desktop computer, our standard is a virtual desktop from VMware in our Spartan GreenSky environment,” said VanWingerden. “It’s really cool. We can give the same tools to students whether they’re sitting here on campus or in Charleston, taking classes several hundred miles away. It’s just like they’re sitting in our lab. Students write papers on their phones all the time.”

USC Upstate provides more than 40 software packages as part of coursework, from specialized programs for statistics and chemistry to education classes. With App Volumes, IT can control exactly who gets access to each piece of software and for how long. “App Volumes gives us the ability to stream these applications to anyone, in any pool, and keep their settings with them,” said Hodges. “We don’t have to create and manage individual desktops for each person. We just manage the application.” For example, a visiting professor can request a specific piece of software that will only be needed for one semester, and the IT department can fulfill that request within any existing virtual desktop pool. Decoupling desktops from applications makes it possible to target only those students who need the software. “Now we can say yes to a lot of requests, make changes really fast and offer those resources,” said VanWingerden.

The university modernized its storage infrastructure by replacing legacy hardware with VMware vSAN. The old equipment was a completely separate system from the virtual desktop infrastructure. vSAN has the benefit of a faster all-flash hyper-converged solution that is natively embedded in the existing VMware stack. The increased speed has cut the redeployment cycle time for virtual machines in half. “The performance of an integrated solid state hypervisor-controlled storage system makes all the difference in the world as far as performance,” said Hodges. “There’s no networking and switching between the SAN and the host. That’s always something that adds complication to the storage environment. Because vSAN is so integrated, it’s right there. It makes a huge difference in speed.”

Business Results & Benefits

The main benefit of USC Upstate’s VMware solution is easier access to computing resources for the university community. Students can study from anywhere at any time, and faculty can work wherever they have an internet connection. Better access to class resources has improved student retention and persistence, which ultimately leads to student success, according to Flynn. He also recalls that “I used to email documents to myself so I could work on them from home. Now I can log on directly through Spartan GreenSky, access my computer, my desktop, work on anything I need to work on. It’s really been a positive for us here at USC Upstate.”

Hodges commented that with App Volumes, “We used to have professors ask for new software or updates in the middle of the semester and we just didn’t have time. Now we can update software in the middle of a lab session and they don’t even realize it. We can say yes a lot more now.” An unforeseen benefit of App Volumes is that the university saves a lot of money on unnecessary software licenses. Because they can control exactly who gets access to an application and when, they don’t have to buy packs of licenses for multiple physical computers

that might only be used by a fraction of the people they were intended for. Said Hodges, “We don’t have to manage that application individually as you would in a traditional desktop environment, or even in the VDI space. We can deploy it to all the people who have rights to it next time they log in.”

Faster and more efficient storage with all-flash vSAN has increased computing performance for everyone on the Spartan GreenSky network. The university is now able to offer more high-performance computing options such as video rendering. “Typically, when we move people to vSAN their first comment is, wow, that’s so much faster. What did you do?” said Hodges. “We don’t typically explain what we did. But we let them know we moved them to a new storage system. They say, wow, that is amazing, I love it.”

The university’s IT staff save time, money and resources with Spartan GreenSky. Both Hodges and VanWingerden appreciate that they and their colleagues no longer have to spend entire days driving around campus to fix computers. Said VanWingerden, “For student device support, we make sure they get on our wireless network and they have the Horizon client – that’s all we have to do. Before, we didn’t know something was happening until it was broken. Now I can see how hundreds of desktops are set up in an instant” and proactively fix problems as they occur. The university also saves money because they don’t have to provide as many traditional desktop computers, and users can bring their own devices to campus. Hodges noted that with VDI, “I don’t want or need a laptop. I have a zero client on my desk and an iPad at home. Even if I don’t have my own iPad or other device with me, I can use yours, or any endpoint, to get the same experience.”

Looking Ahead

University of South Carolina Upstate plans to continue to offer more resources to students, including more distance education, that will help students in the Spartanburg area and across the state access the resources they need to further their educations. Flynn said that “I’d like to see us double the number of courses we currently have online in the next two to three years. I anticipate growing programs that are completely online, both at the undergraduate and the graduate level. VMware technology and Spartan GreenSky will be crucial to us as we move forward in our mission.”

VanWingerden said that the speed and performance of the VMware stack has provided new opportunities in high performance computing and will allow faculty to do big data research during off-peak computing times. The university plans to implement more active desktop features to engage students and further the university’s brand. “We’re planning to provide fully branded active desktops, course schedules, listings of extracurricular activities – things that will draw you into campus life. It’s not just about technology. We want our students to identify as Spartans.”

