



## NC STATE UNIVERSITY

### VMware Horizon View Delivers BYOD Solution for Anytime, Anywhere, Any Device Access to Applications and Data for North Carolina State University Users

#### INDUSTRY

Higher education

#### REGION:

Americas

#### SIZE

More than 33,000 students and nearly 8,000 faculty and staff

#### ABOUT THE UNIVERSITY

Founded in 1887, North Carolina State University (NC State University) is a comprehensive university known for its leadership in education and research, and globally recognized for its science, technology, engineering, and mathematics leadership.

#### PRODUCT

- VMware® Horizon View™
- VMware vSphere®
- VMware vCloud® Services
- VMware Professional Services

#### Snapshot

NC State University uses Horizon View virtualized desktops to provide a consistent and reliable end-user experience for faculty, staff, and students, and to address bring your own device (BYOD) challenges. Horizon View supports NC State University's blended learning vision by enabling anytime, anywhere, any-device access to applications and data, including demanding 3D graphics applications.

#### Business Challenges

- Enable information and application access for students, faculty, and staff—anytime, anywhere, across devices
- Support more devices without increasing IT staff

#### Triggers

- Device and application proliferation
- Management of mobile users
- Need to reduce support costs at the current IT staff level

#### Solution

Horizon View enables BYOD and reliably delivers desktop services anywhere they are needed—on or off the NC State University campus—fully supporting a distributed computing environment and student, faculty, and staff device preferences.

#### Benefits

- Leverages centralized university computing resources to deliver applications and data to user-owned devices
- Delivers consistent access to information and applications for students, faculty, and staff across computing devices
- Solves BYOD challenges related to supporting multiple devices and platforms
- Helps with recruitment of top students, faculty, and staff
- Significantly reduces IT help-desk load
- Enables students and faculty to work remotely, reducing time and energy wasted in traveling to use on-campus resources

#### Use Cases

- Secure mobility and BYOD
- Hosted, high-performance computing and 3D graphics

***“The Hunt Library is the visible lighthouse that says this is a technology leader and it’s everything from the high-resolution rooms where you can do innovation to the virtualized desktops that allow students, faculty, and staff to use their services anywhere, anytime they need them.”***

Dr. Marc Hoit  
Vice Chancellor for IT and CIO  
NC State University

### Situation

Students, faculty, and staff are bringing personal devices to university campuses in record numbers, and forward-looking academic institutions such as NC State University are setting the model for how to successfully embrace this trend.

“Bring your own (BYO) anything is what we advocate,” says Dr. Marc Hoit, vice chancellor for IT and chief information officer (CIO) of NC State University. “Students and faculty now have three to three and a half connected devices on NC State University’s network and we must provide services to meet their needs—from identity and access management to provisioning on demand.”

The opening of the James B. Hunt Jr. Library in April 2013 on NC State University’s campus set a technology precedent for leading-edge universities for years to come.

“Our focus now is on supporting students, faculty, and staff in achieving their missions and goals,” explains Hoit. “This is a bit of a departure. It’s no longer about how many bits can we provide or how many desktops can we configure.”

NC State University’s engineering school is the fourth-largest in the United States, with one of the top 20 game-design programs in the country. As students, faculty, and staff continue to bring in new devices, the university must be sure that it can make the unique resources in the library available to them anytime, anywhere, on any device—not just when individuals can make it into the physical facility.

“There’s a laptop requirement for engineering, so we know they’re walking in with their own devices,” says Maurice York, head of information technology for NC State University libraries. “We want to provide an environment that delivers the compute power that students and faculty need to leverage this facility anywhere they are, on any device that they happen to be on, anywhere in the world.”

Yet limited IT resources required NC State University to be smart about how it would support the continued proliferation of BYO anything. Because moving around the sizable campus was wasting IT time and money—dealing with parking passes, gas, logistics, and more—NC State University looked to desktop virtualization as a way to solve its IT support challenges.

### Solution

The NC State University Libraries IT team chose Horizon View to deliver desktop services to students, faculty, and staff anywhere they needed them—on and off campus. The centralized administration capabilities in Horizon View also provide NC State University with a completely distributed computing environment that can be centrally supported and managed.

Horizon View is a complete virtual desktop infrastructure (VDI) solution that simplifies desktop management and provides users with what they need, when they need it. It also includes support for access to high-performance 3D graphics applications—even from personal devices.

For NC State University’s more than 33,000 students and nearly 8,000 faculty and staff, NCSU Library IT set up the Horizon View infrastructure with two graphics processing unit (GPU)-enabled clusters that include Dell servers and NVIDIA GRID graphics cards. VMware vSphere Distributed Resource Scheduler™ and VMware vSphere High Availability are enabled, and VMware vSphere vMotion® maintains balance across all of the hosts.

Prior to virtualization, the library had standard Windows desktops. All applications were pushed out directly to physical desktops by campus IT staff. Now provisioning a new desktop takes very little time, and typically 10 or so standby virtual machines are available—so when someone logs out, a new one is created with several remaining at any given time.

For university disciplines such as design, engineering, humanities, and meteorology, Horizon View supports “a lot of graphical requirements with high performance so that students can get to work and the computing environment isn’t getting in their way,” explains York.

***“We never know who, from which discipline is going to walk up and use a desktop, so any given day, every one of them has to perform. We worked closely with engineers from VMware, Dell, Cisco, and NVIDIA to solve the challenges we were facing.”***

Maurice York  
Head of Information Technology  
NC State University Libraries

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NC State University desktop virtualization enables a wide range of high-performance 3D applications including Dassault SolidWorks, Autodesk AutoCAD, and other products in the Autodesk portfolio for faculty and student projects including simulations and fluid dynamics.

According to Chris Mann, an NC State University undergraduate student majoring in mechanical engineering, “Before virtualized desktops, I would have to go to a specialized computing lab with the powerful workstations that have the appropriate software installed. Now I can stay at home and use my weak laptop to run the virtual machine with SolidWorks on it, or in an emergency situation, I can even use it on my phone. It’s seamless.”

NC State University is poised to raise its entire infrastructure into the cloud, enabling students, faculty, and staff to choose anywhere they want to work, and deliver whole environments to them. According to York, users will never need to think about whether the right application is going to be there or whether they can get their data.

### Benefits

Those attending and working at NC State University can confidently continue to bring their own anything to campus or use their personal devices remotely to access university computing resources. York describes how in the Hunt Library, students sit with a laptop on one side, another laptop on the other, and a phone and tablet within reach. “We believe it’s a real limitation to have to tell people they can only use a specific device to do their work. Our goal is to make sure that no matter what they bring to the table, they’re going to be able to interact and succeed.”

For faculty, staff, and students who require always-available applications, VMware desktop virtualization delivers high performance and “saves a ton of time,” adds engineering student Mann. “I don’t have to travel between campuses. I can stay at home and do my work.”

About the infrastructure itself, York says, “Performance is exceeding expectations—giving us a really good feeling about how we scale going forward.”

Since deploying virtualization, NC State University has been closely monitoring costs and the support load. As York explains, “We want to know what really happens to the support load and the number of tickets coming in. Over the last three to six months, we’ve seen our help-desk load drop significantly. We don’t get the same number of problems and we don’t have to deploy our resources to solve as many of them. A lot of issues can be solved simply from the help desk or by a technician very quickly going in and making a modification.”

NC State University Libraries followed best practices and recommendations to deliver a robust environment for end users. To ensure that all systems were running as efficiently as possible, the IT team engaged the VMware Professional Services organization for a health check that York says “went very well.” He cited NC State University’s overall experience with the VMware Professional Services team as outstanding.

Looking ahead, NC State University plans to leverage the suite of vCloud products—from server and desktop virtualization to cloud computing with automation and security—to provide the most innovative and collaborative environment possible for students, faculty, and staff.

***“When I use SolidWorks on virtual desktops, it’s seamless. I don’t have any trouble with speed or anything. I can access the virtual desktops from my phone, my iPad, and my computer—it’s very convenient.”***

Chris Mann  
Mechanical Engineering Student  
NC State University

## About VMware Horizon Suite

VMware® Horizon™ Suite, the platform for workforce mobility, connects end users to their data and applications on any device without compromising IT security and control. The suite includes the following products:

### VMware Horizon View

Simplify desktop management, security, and control while delivering an optimum end-user computing experience across all devices and networks.

### VMware® Horizon Mirage™

Gain centralized, zero-touch physical and virtual desktop image management with native performance and flexibility for end users.

### VMware® Horizon Workspace™

Streamline the end-user experience and reduce costs with a single workspace for applications and data, delivered securely on any device.

### VMware® vCenter™ Operations Manager for Horizon View™

Monitor and optimize the health, performance, and efficiency of your entire VDI.

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