

# College Chooses Virtual Desktops to Meet Instructional Needs



Volunteer State Community College installs virtual desktops to increase student access to new learning materials.

## Executive Summary

### Volunteer State Community College

- **Industry:** Higher Education
- **Location:** Gallatin, Tenn.
- **Number of Employees:** 8500 students and 600 full-time faculty and staff

### CHALLENGE

- Support growing student population while reducing operational costs
- Accommodate students requiring a work life balance
- Adjust instruction after state program changes

### SOLUTION

- Refresh existing data center to support expanding campus population
- Update network foundation to accommodate virtual desktops
- Optimize staffing resources by operating with no additional manpower

### RESULTS

- Allowed community college to meet IT needs with reduced operating budget
- Increased student efficiency and productivity by enhancing access to course work
- Realized additional cost savings with more efficient data center management

## Challenge

Student enrollment at community colleges grew 17 percent across the state of Tennessee in 2010. With this rise in student population, community colleges faced more needs to support advanced student learning and the delivery of supporting materials. Volunteer (Vol) State Community College in Gallatin, Tennessee currently operates with 600 full-time faculty and staff who strive to meet the needs of 8500 students.

In 2009, Tennessee cut appropriations to all colleges and universities, which reduced appropriations for Vol State by 15 percent. In addition, that same year Tennessee passed education legislature that changed the delivery of remedial and developmental courses in math, reading, and English. The new model altered the instructional approach from instructor-led to computer-based with instructor support. For the students involved in these courses, this change meant developing new problem-solving and test-taking skills as well as assessing progress on a computer-based platform.

To meet state and course expectations for mathematics teachers and learners, Vol State had to update its student labs on a very limited budget. Vol State's information technology (IT) department also needed to refresh the desktop computers and upgrade each unit's speed and quality of content delivery as part of the lab modernization, with no increase in staff. The IT department required up to 400 additional units, pushing the college's total to nearly 2400 units, and had four technicians on-hand to service these new and existing desktops.

Additionally, Vol State wanted to reduce the power bill for the community college under a new energy management plan. Desktops required a considerable amount of power usage, and the expectation of additional desktops would only increase that figure.

The IT staff needed to act quickly. In the summer of 2010, the Vol State IT department developed a strategic plan to increase materials access for students and save energy for the college: Reduce the number of physical devices and move into desktop virtualization.

## Solution

Leading up the execution of its desktop virtualization strategy, Vol State had worked with one server vendor for over 12 years and used this vendor almost exclusively to meet technical needs at the community college. Vol State engaged with this vendor to realize its virtualization strategy and was initially satisfied with the vendor's offerings. Two weeks before making a decision, the director of IT for Vol State, Brian Kraus, attended a Cisco Unified Computing System™ (UCS™) demonstration to learn about smart, scalable virtual infrastructure and management. Because Kraus had been told by Vol State's legacy vendor that the community college was not large enough

# College Chooses Virtual Desktops to Meet Instructional Needs



Volunteer State Community College installs virtual desktops to increase student access to new learning materials.

“Cisco Virtualization Experience Infrastructure, built on Cisco UCS, became the foundation we relied on to meet Vol State’s virtual vision and enable education programs at our community college.”

---

**Brian Kraus**

Director of Information Technology,  
Volunteer State Community College

to engage in virtualization, which often requires the use of blade servers, Kraus walked into the UCS demonstration with skepticism. “Our legacy vendor had not offered to help Vol State in new, innovative ways, and had recommended more of the same servers we’d been using previously in our data center,” says Kraus. In addition, this vendor told Kraus that, with state budget cuts, blade servers were out of Vol State’s price range and that the community college would never recover the cost.

Cisco proved this vendor wrong and won over Kraus, the IT department, and Vol State almost immediately. The Cisco solution for desktop virtualization, the Virtualization Experience Infrastructure (VXI) goes beyond traditional virtual desktops to deliver virtualized workspaces for education, built on Cisco® UCS. Cisco UCS was able to meet Vol State’s needs in virtual computing with less central processing units and more virtual desktops per server than the legacy vendor. The most attractive offering of Cisco UCS included the comprehensive ability to unite computer, network, and storage access into a single, cohesive system. In addition, Cisco was competitive enough in pricing that choosing UCS would not only meet Vol State’s needs for student labs, but it would also outfit their disaster recovery site with virtual machines, offering half of the number of servers as the legacy vendor.

Leveraging Cisco UCS, Cisco VXI provides the platform for organizations such as Vol State to deploy virtual desktops today, while offering a solution that unifies virtual desktops, voice, and video in a unified virtual workspace. Cisco VXI, built on UCS, offers Vol State the scalability and performance that they need for virtual workspaces for students and faculty.

One of the key drivers in choosing Cisco was Vol State’s need for increased performance at a lower cost. “When Cisco’s engineer showed us the benefits of storing data with virtual server profiles, and how these profiles are integrated with different blades with an exponential amount of memory, it became clear that Cisco was at the front of the pack,” says Kraus. For Vol State, the initial investment was almost identical to the cost that the legacy vendor offered, but the long-term savings and benefits were much more valuable.

Vol State purchased Cisco UCS to deliver virtual desktops in November 2010 and began to deploy the data center equipment in January 2011, simplifying and driving operational excellence. At the same time, Vol State engaged with Cisco partner Citrix to deliver up virtual desktops to a 160 thin client computer lab. The pilot of the new virtual computer lab began in March 2011 and ran through June. Vol State remodeled their student labs to accommodate virtual desktops and went live with Cisco UCS in August 2011.

“Cisco Virtualization Experience Infrastructure, built on Cisco UCS, became the foundation we relied on to meet Vol State’s virtual vision and enable education pro-

# College Chooses Virtual Desktops to Meet Instructional Needs



Volunteer State Community College installs virtual desktops to increase student access to new learning materials.

## Product List

### DATA CENTER SOLUTIONS

- Cisco Unified Computing System (UCS) B-Series Servers
- Cisco Virtualization Experience Client 2212 (VXC)
- Cisco Nexus 2000 Switches
- Cisco Nexus 3000 Switches
- Cisco Catalyst 4500 Switches
- Cisco Catalyst 6500 Switches

### THIRD-PARTY SOLUTIONS

- Microsoft Office
- Microsoft Hyper-V (server virtualization)
- Citrix XenDesktop
- Math and science online learning software

grams at our community college,” says Kraus. With their UCS purchase in 2010, Vol State received 160 clients and has retained a portion of those units for maintenance and replacement. In fact, the new network foundation is so effective at retaining information, it is only 60 percent utilized. “With the sheer amount of memory that we can put into blade servers, we’re only using two of these high-density servers, which means we aren’t using all of memory and could hold more,” says Kraus.

## Results

Vol State’s engagement with Cisco has opened doors for the community college. By installing a next-generation virtual network platform, Cisco has helped Vol State to achieve its mission to extend the reach of quality education services more efficiently and effectively with a decreased budget. The greatest advantage that Cisco UCS has given the community college is allowing new types of dialogue across borders. Instead of maintaining or increasing student labs, the IT department now pushes instructional content out to countless new and existing off-site learners. Maintaining UCS requires less time, which benefits the small number of IT staff employed at the community college.

After the first day of school in September 2011, Kraus and the IT department learned that they had to upgrade a software package in time for student activity the next day. With Vol State’s legacy vendor, that software package upgrade would have taken nearly 30 hours to complete. Unlike traditional approaches to desktop virtualization, with Cisco VXi built on UCS, the IT department was able to update the software in less than one hour. The speed of server management is a welcome change for Vol State, which has also seen increased patching (using software to correct a problem with a program or an operating system) proficiency. Now, Kraus and his team only have to complete patch work in one place, which provides upgrades and benefits to faculty and students instantly.

Vol State saved a large amount of money by deploying virtual desktops on Cisco UCS, a process that took less than two hours, as opposed to two days with the community college’s legacy vendor. Kraus and his team calculated that the deployment cost Vol State US\$700 per end-user; the college was paying close to \$1000 per end-user with its legacy vendor. This cost savings will expand as Vol State increases its number of virtual desktops as the price per end-user will continue to decrease.

Providing content to remote learners is now a reality that helps to transform the educational experience. “We haven’t had any new construction for several years,” says Kraus. “However, within that same time, we’ve doubled our student population and served twice the number of students with the same number of classrooms.” Moving to online and hybrid instruction is now a preference for many students, and with UCS, students are able to optimize their time and work around their busy

# College Chooses Virtual Desktops to Meet Instructional Needs



Volunteer State Community College installs virtual desktops to increase student access to new learning materials.

schedules. "Cisco has helped us to ensure that online students are getting the same experience as on-site learners," says Kraus.

One of the primary reasons that Vol State is so pleased with adopting Cisco is the amount of support they have received from the Cisco sales team and engineers.

"Whenever we have issues, Cisco appears on-site immediately and knows exactly who to contact to fix an issue," says Kraus. "We've truly had overwhelming support. We have the best relationship with Cisco of any of our vendors now; they really know their product."

## Next Steps

In the long-term, with increased student and teacher interest in mobility, Vol State hopes to expand its relationship with Cisco to make virtual desktops available on student-owned mobile devices. As courses change to incorporate mobile learning, Vol State believes that it will benefit greatly from retaining course data on blade servers, which gives the community college more control over sensitive information and alleviates the burden of uploading content with a portable flash drive.

By leveraging its network, Vol State continues to transform its offering as an education leader to better serve student needs. "Moving into the future, we want to give students access to applications within a virtual workspace that would not otherwise be available to them," says Kraus. "With our virtual desktop environment, if a faculty member doesn't have a course-specific application, they can use one from a shared resource instead of making a purchase themselves."

Vol State's deployment of Cisco UCS is one of the first Virtual Desktop Infrastructure deployments, and the largest, in the Tennessee Board of Regions. Kraus and the IT department hope to expand on this milestone in 2012 by resourcing and deploying more virtual desktops for expanded higher education course work.

## For More Information

To find out more about the Cisco Unified Computing System, go to:  
<http://www.cisco.com/go/ucs>.

For more information on Cisco Desktop Virtualization and the Cisco Virtualization Experience Infrastructure, go to: <http://www.cisco.com/go/vxi>.

