

## Large Multidisciplinary University Regains Control of Desktop Applications

Seattle University puts educational needs first with unified computing and virtual desktop systems.

### EXECUTIVE SUMMARY

#### SEATTLE UNIVERSITY

- Higher Education
- Seattle, Washington, USA
- 7751 undergraduate and graduate students; 1381 faculty and staff

#### BUSINESS CHALLENGE

- Short desktop computer lifecycles, difficult management of the desktop application environment, and high operating expenses
- Inability to meet specific, real-time software application requests from professors, students, and college deans
- Disconnect between desktops, applications, and data within the data center

#### NETWORK SOLUTION

- Implement state-of-the-art Cisco Unified Computing System technology optimized for VMware and Virtual Desktop
- Enable server management from single screen using unified computing system

#### BUSINESS RESULTS

- Ability to deploy specific software applications and business requirements for any educational or administrative department on demand
- Faster response times to students, teachers, and faculty to help meet educational and administrative needs
- Conversion of lab machines to virtual desktops, decrease in operating expenses, and prolonged desktop lifecycle

### Business Challenge

Seattle University (SU) is a Jesuit Catholic school located on Capitol Hill in Seattle, Washington. SU is the largest, independent, multidisciplinary university in the Northwest, with 7751 students enrolled in undergraduate and graduate programs. SU was ranked the seventh best school in the Western region in *U.S. News & World Report's* "Best Colleges 2010" list, based on its full range of master's and undergraduate program offerings. "SU is one of the most culturally diverse, genuinely urban universities in the Northwest region," says Bob Dullea, vice president of University Planning for Seattle University. "We are dedicated to educating the 'whole' student into professional formation, and empowering leaders for a just and humane world."

University officials wanted to continue advancing as one of the top schools in the nation and provide state-of-the-art technology and equipment to the campus community. They found it increasingly difficult to keep the nearly 20 campus computer labs and over 1500 desktop computers synced on a uniform software program. The aging equipment, software, and network were difficult to upgrade because the original software packaging was

manually installed and updated for specific academic courses through a time-intensive process. "It was difficult for us to upgrade each computer lab and expensive in terms of hardware, software, and labor costs," says Daniel Duffy, chief technology officer for Seattle University. "These were some of our motivating factors to begin looking for a modern virtual desktop infrastructure."

Seattle University managed hundreds of educational applications on hundreds of servers. In many cases, each application required a dedicated server, even if the application used a small portion of the server's available physical central processing unit (CPU). Overall, computing resources were not being used efficiently. The university's IT department tried to maintain the growing number of servers for deployment, monitoring, and maintenance, along with associated resources such as electrical power, cooling, rack space, cabling, and support personnel. Additionally, student, faculty,

and staff members had to travel to campus computer labs to have access to the campus environment.

SU identified multiple technologies and vendors to scale and optimize a heterogeneous virtual desktop infrastructure, including long-term university partners. “In the end, Cisco’s approach was the most professional, by far,” says Duffy. “They had an alignment with their technology and our vision that could not be beat. The updated system was deployed September 18, 2009.”

## Network Solution

To overcome these data center challenges, SU worked with Cisco to deploy virtualized servers and other related Cisco® technologies for networking and data center management. Instead of the traditional design where one application runs on one physical server, a single physical server can now host multiple virtualized servers (also called virtualized machines) and support multiple applications from a single device.

Seattle University uses VMware as the foundation for server virtualization in the data center. VMware supports the creation of virtualized servers, each potentially using multiple CPUs and multiple gigabytes of memory. The number of CPUs and memory can be modified easily as applications grow, and university technicians can relocate virtualized servers between physical servers to accommodate an application’s changing demands for computing resources. “We have a 48-acre college campus with lab environments from one end of the campus to the other, with a mechanism for testing and short-term deployment of late software requests from faculty,” says Duffy. “The new system requires significantly fewer technicians to upgrade, thus shortening the testing time and personnel needed considerably.”

VMware provides the software that students would use in a regular classroom, regardless of which computer they decide to use on campus. Each time a student logs onto the server, it builds a “new” virtual machine. Files can be saved on the shared drive, “My Documents,” or on a thumb drive, and will be readily available on any campus desktop computer when needed.

Server virtualization also allows multiple operating systems to be installed on a single physical server. Each application runs on a standard, dedicated operating system, and only the physical server resources are shared among the operating systems or applications. This design increases overall use of the physical hardware without sacrificing application availability, reliability, or integrity.

In addition, Seattle University relied heavily on Cisco Services, along with Cisco Gold Certified partner INX, to install and integrate the new technologies into its existing infrastructure. “The Cisco Services team played a key role in ensuring the success of this project,” says Duffy. “They worked side-by-side with our IT team and INX throughout the planning, design, and implementation phases to make sure we had the best architectural design and the smoothest deployment possible.”

## Business Results

"We are now managing open computers in 17 of the 32 educational and administrative buildings,

"We cut down on the amount of people deploying software in multiple areas for specific classroom needs and requests. The Cisco Unified Computing System provides centralized management across campus that modernizes our learning environment."

—Dan Duffy, Chief Technology Officer, Seattle University

residence halls, and student areas on campus," says Duffy. "We have plans to grow into the other buildings as well. The online solution is literally without boundaries. We cut down on the amount of people deploying software in multiple areas for specific classroom needs and requests. The Cisco Unified Computing System provides centralized management across campus that modernizes our learning environment."

Students and faculty can access computer lab machines from their dorms and other offsite locations through the high-speed internet connection linked to the virtual desktop infrastructure.

University technicians also cleared physical space on campus by reducing the need for additional computer labs. "On every college campus, space is at a premium," says Dullea. "The ability to provide software to our campus community and not require the students to come to a facility has allowed us to avoid the extra costs associated with building more computer labs."

The university's student-run newspaper, *The Spectator*, has quoted student and faculty members regarding their approval of the new technology implementations in some of its issues. Many express they are "getting more for their tuition money," and the school is able to respond to their needs faster and easier than before. Student reporter Carolyn Huynh wrote, "Imagine having Mathematica, SPSS Accounting Software, Microsoft Word and a plethora of other academic resources right at your fingertips without having to spend thousands of dollars...the (new) software should lessen crowding in labs, save students money and allow them to work from somewhere where they are more comfortable."

Huynh quotes freshman business and computer science major Kenneth Ordonia, who says, "I like that I don't have to spend millions of dollars on purchasing expensive software for all my classes when I can just get them anytime I want."

"The impact of desktop virtualization on our student population is immense," says Duffy. "We don't have to expand the brick and mortar of our campus; rather, we have taken better advantage of the physical resources we already have in place. The fact that we could simplify the management of our software licenses, be more focused on individual student needs, better support effective teaching and learning practices by installing a unified computing system into our existing data center infrastructure gives this project a unique functionality."

## Next Steps

"We definitely see much more opportunity in how we will use our virtualized environment," says Duffy. "We know we just scratched the service and are recognizing the benefits of the technology on the academic side. Moving forward we plan to pursue administrative applications, disaster recovery opportunities and business continuity programs."

**Figure 1.** Seattle University's chief technology officer Dan Duffy believes VMWare and a virtualized desktop infrastructure will improve students' experiences in classes within every college on campus.

PRODUCT LIST
<b>Network Management</b> <ul style="list-style-type: none"> <li>• Unified Computer System</li> <li>• Virtual Desktop Infrastructure</li> <li>• Cisco Unified Computer System 5100 Series Blade Server Chassis</li> </ul>



## For More Information

To find out more about the Cisco Virtual Desktop Infrastructure, go to:

<http://www.cisco.com/en/US/netsol/ns978/index.html>



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