

# University Deploys Cisco Application Acceleration Solution to Better Serve Students and Faculty

Weber State University uses Cisco ACE module to provide highest level of application infrastructure and improve network security, scalability, and reliability.

EXECUTIVE SUMMARY
<p><b>WEBER STATE UNIVERSITY</b></p> <ul style="list-style-type: none"> <li>• Higher Education</li> <li>• Ogden, Utah</li> <li>• Number of Faculty/Staff: 1,300</li> <li>• Number of Students: 22,000</li> </ul> <p><b>BUSINESS CHALLENGE</b></p> <ul style="list-style-type: none"> <li>• Provide a reliable, secure switch-based infrastructure that supports university network services and applications.</li> <li>• Maintain robust application acceleration and fluency to accommodate high-traffic periods, such as student registration.</li> <li>• Needed to consolidate to fewer application switches, SSL integration, and firewall features.</li> <li>• Allow for scalability as the needs of the university grow.</li> </ul>
<p><b>NETWORK SOLUTION</b></p> <ul style="list-style-type: none"> <li>• Upgraded network foundation to consolidate infrastructure and improve application performance</li> <li>• Cisco® ACE module for the Cisco Catalyst® 6500 Series</li> <li>• Cisco Catalyst 6500 Series with Supervisor Engine 720</li> </ul>
<p><b>BUSINESS RESULTS</b></p> <ul style="list-style-type: none"> <li>• Top reliability, high availability, and highest performance in the industry.</li> <li>• Security features to facilitate device consolidation.</li> <li>• Ability to streamline application provisioning and roll-outs.</li> <li>• Scalable performance via software licensing as the business needs grow without the need to buy additional devices.</li> </ul>

## Business Challenge

Weber State University (WSU) is a multi-campus university located in Ogden, Utah and Davis County that offers the largest and most comprehensive undergraduate offering in the state.

The university has two major campus sites that are eight miles apart and three satellite sites, two of which are classrooms, with the third being a large meeting center. The WSU network is accessible by anyone connected with the university, including faculty, staff, and students. The university's IT infrastructure had previously been a heterogeneous mix of hardware and software technologies from a variety of vendors. Over the last 18 months, WSU began a migration to an all-Cisco network with wireless capabilities as well as a major data center upgrade. The goal of the new network is to help ensure that WSU has a solid infrastructure to best serve its students and faculty.

Core applications that WSU has running in the data center include Sun Guard Banner, a multipurpose application that is used for everything from human resources systems to student management, and WebCT, an online management software application that aids students by creating, managing, and organizing class content in a Web-based learning

environment. In addition, for online university courses, a wide variety of Web-based applications, including all class content, grades, e-mail, and message chat boards, must be continually accessible for students.

One of the goals for the data center upgrade was to accommodate WSU's network traffic loads, especially during peak usage times such as fall and midterm registration. Moreover, the university needed to manage and accelerate application delivery to users, to further help ensure smooth network experiences. According to Jim Healys, network engineer with Weber State University, during peak times the database was processing approximately 5000 transactions a second, with roughly 22,000 people trying to register for classes in a one-week period.

“Our normal throughput in a load balancer is fairly low throughout the year on average, but at the beginning and end of the semester, we just get very busy, so having the ability to load balance was critical,” says Healis.

### Network Solution

Healis and the WSU IT team decided to upgrade to the Cisco® Application Control Engine (ACE) module for the Cisco Catalyst® 6500 Series, Cisco Catalyst 6500 Series Supervisor Engine 720. They also implemented the Cisco Catalyst 4948 Switches in the data center and the Cisco Catalyst 3750 Series Switches in the distribution layer for WSU to achieve their IT objective of consolidating their data center server infrastructure, maximizing application availability, and improving application performance and security.

**“The broad range of traditional load-balancing and content-switching techniques to optimize application traffic to the best available server was really a winning point for us,” says Healis. “The Cisco ACE’s virtualization capability gives us the ability to provision faster roll-outs and deliver a broad range of multiple applications and updates, giving us computing capabilities that we need currently and in the future. I have a one-stop shop for roles-based administration, virtualization, and load balancing, all backed with the reliability of a Cisco 6500 chassis solution.”**

—Jim Healis, Network Engineer, Weber State University

“Along with our wireless upgrade, we are in the process of rebuilding a distribution layer network with the 3750 stackable switches so that we move each building into its own routed network as opposed to the previous deployment in which buildings just connected directly into the core,” says Healis. “Our big push for employing the Cisco ACE was the integration. With the ACE, I did not have to worry about configuration in a half dozen places.” Healis said scalability was also a top reason for moving to the Cisco ACE module for the Cisco Catalyst 6500 with the Supervisor 720.

“Scalability and network consolidation were key considerations for moving to the Cisco ACE module for the Cisco Catalyst 6500,” says Healis. “With ACE and common configuration rules on my PIX and Cisco CSS 503, I have a one-stop shop for roles-based administration, virtualization, and load balancing, all backed with the reliability of a Cisco 6500 chassis solution.”

According to Healis, the Cisco ACE module’s ability to leverage virtualization and roles-based system access to streamline and reduce the cost of operations involved with rolling out, maintaining, securing, and scaling application deployments was instrumental in their decision. Healis was also impressed with the way that the Cisco ACE leverages best-in-class Layer 4 and 7 load-balancing algorithms coupled with highly available system software and hardware.

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Since the upgrade, WSU has moved to virtualization in the server environment, so in addition to being able to load balance across multiple machines and take advantage of the added security capabilities that Cisco ACE offers, they can now deploy applications in minutes. The frequent outages that the university had experienced previously are now a thing of the past.

“The frequent outages were definitely one of the biggest drivers for the upgrade,” says Healis. “But equally as important were the increasing requirements for security of student information in addition to upgrading from older equipment, and then, of course, added security for our move to a wireless network.”

### **Business Results**

The biggest benefit that WSU has achieved from the network migration and Cisco Catalyst 6500 Series ACE deployment is improved reliability and ease of administration, resulting in better service for university constituencies.

“Reducing the amount of time that it takes for changes to happen or for upgrades to occur is priceless,” says Healis. “The ease of use, simplification, and time savings that Cisco has brought to the table with the ACE solution is a really big deal for an IT team that does not have a big head count.”

### **Next Steps**

In addition to the Cisco ACE module for the Cisco Catalyst 6500 Series that WSU has already deployed, Healis and the IT team have plans to deploy a second Cisco ACE for redundancy.

“We have recently completed a security and subnet audit in the data center to evaluate needed services, and we are planning a migration with the goal of moving from the existing architecture – a mixture of whatever has worked – into dividing the data center into subnets based on operating systems, and whether or not they have public access,” says Healis.

Load balancing for applications and roles-based administration capabilities are key features of the Cisco ACE module that WSU is planning to take advantage of in the near future, and Healis says that there are certain individuals within the university’s applications group that will be granted management privileges who will be able to take advantage of the roles-based administration. Other key features include Secure Sockets Layer (SSL) and encrypted traffic.

“The future of our Web-based environment and student portals will be 100 percent encrypted,” says Healis. “In terms of the other security features of the Cisco ACE, we are going to utilize them to eventually replace our firewall. The Cisco ACE will also be used to front-end the server between load balancers and the server security. We will very soon be deploying NAC [Network Admission Control] out to the edge, and the Cisco ACE will give us a very secure computing environment accessible to those who need it.”

Over the last few years, WSU has converted over to a complete Cisco shop, and Healis says that with the IT department’s limited staffing resources, Cisco has provided an invaluable service in making recommendations and helping out with integration.

“It has been a lot of work, but fortunately our local Cisco team has been helpful in coming to our site to show us what we need to do and helping us get it done,” says Healis. “It was easy when I took this job at WSU to say to my managers, ‘this is what you need to get the job done.’”

### PRODUCT LIST

#### Cisco Application Networking Services

- Cisco® ACE module for the Cisco Catalyst® 6500 Series
- Cisco Catalyst 6500 Series Supervisor Engine 720
- Cisco Catalyst 4948 Series Switches
- Cisco Catalyst 3750 Series Switches

### For More Information

Find out more about Cisco ACE module for the Cisco Catalyst 6500 Series, please visit <http://www.cisco.com/go/ace>.



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