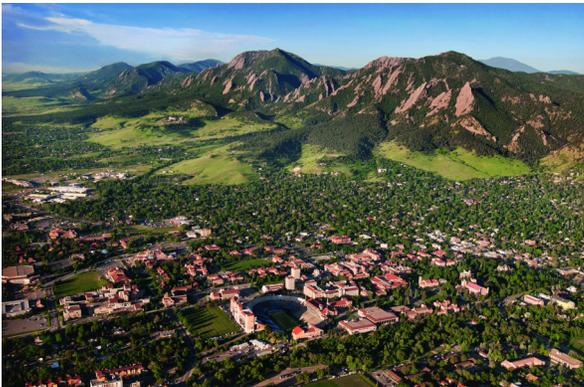


# University of Colorado Boulder Housing and Dining Services Goes Green With New Virtual Desktop Infrastructure

Hybrid Storage from Nimble and Scalable Cisco UCS Servers Deliver Solid Foundation for VMware View VDI

## University of Colorado Boulder

University of Colorado Boulder (CU-Boulder) is a research tier-1 university (see more facts on back page) and has earned its stellar reputation as one of the most beautiful and environmentally-friendly college campuses in the country. The University takes great pride in its spectacular location in the Rocky Mountains and many award-winning “green” and sustainability initiatives. Over 32,000 students now attend classes at CU-Boulder, pursuing a world-class education in over 150 fields of study, from arts and sciences, to business, education, engineering, environmental design, journalism, law, music, and more.



Supporting all of the residential and dining needs for the thousands of students, faculty, and university staff that live and dine on campus every day is a monumental task. The statistics are staggering. In addition to serving over 21,000 meals daily, the University’s Housing and Dining Services division manages all facilities and services for the 7,500 students who live in CU-Boulder’s 25 residence halls along with 850 family housing units.

Robert Dixon, director of information technology for CU-Boulder’s Housing and Dining Services (HDS), is responsible for making all of this happen smoothly and flawlessly. “Our division operates almost like a small corporation within the University,” explained Dixon. “We employ over 600 people, 30 of which are dedicated IT professionals. Our team is responsible for the procurement and ongoing management of all systems and supporting IT infrastructure for housing, dining, summer conferencing, facilities, web site creations including e-commerce, security cameras and locking, and management of the campus wide Buff OneCard (campus ID card) operations. HDS manages 25 buildings or one-third of the entire campus footprint – with a \$100 million annual budget.”

## A Growing Problem

Fourteen years ago, when Dixon began at CU-Boulder, the Housing & Dining Services department was much smaller. “Our IT environment has grown significantly over the past few years. We started with just two databases and about 150 PCs. We now have over 500 computers and 150 database systems of which 25 are critical business systems. Keeping all of these different systems in sync with upgrades and patches, ensuring they have the latest malware protection, and managing all backups is a huge challenge for our organization.”

## Storage Profile: CU-Boulder



### Customer Challenges

- Supporting 25 critical business systems and 155 separate databases was time consuming and inefficient on 500 staff workstations.
- Laptops and desktops were expensive to procure, difficult to manage, and consumed too much power
- Previous virtualization solutions lacked the necessary stability, ease of management, performance and scalability needed for growth

### Solution

- Cisco Unified Computing System B-Series Blade Servers (3 chassis with B230/B200)
- Nimble Storage CS240 storage arrays
- VMware View 5 desktop virtualization solution

### Business Benefits

- New zero-client user end-point devices enabled by VMware View reduce ongoing infrastructure procurement costs by 70 percent
- Nimble’s hybrid storage delivers high performance for VDI at 1/10 the cost of all-flash arrays for faster ROI
- Cisco UCS provides linear scalability with deterministic performance for rapid provisioning of compute capacity
- Virtual desktops provide a perfect opportunity for working remotely, reducing transportation and facilities costs and increasing productivity of field employees
- Centralized management of virtual desktops, Cisco UCS servers and Nimble arrays increases IT efficiency and improves security
- VDI reduces power consumption from 150-200 watts per traditional workstation to 32 watts per VDI workstation which equates to departmental energy savings of \$40K per year and also minimizes the datacenter footprint, supporting the campus-wide green initiative
- Nimble’s scale-to-fit functionality and Cisco UCS’s flexibility provide the ability to non-disruptively scale performance and capacity for VMware View

“Working with the Nimble Storage team has been a great collaborative experience,” concluded Dixon. “The support we’ve received has been better than we’ve experienced with other vendors. For any enterprise or educational institution considering a move to a virtualized desktop environment, I would strongly recommend the integrated VMware View, Cisco UCS, and Nimble Storage solution. The combined power of these three leaders in virtualization, compute, and storage is simply unbeatable.”

## CU-Boulder Facts

One of only 34 U.S. public research universities selected to be in the Association of American Universities (AAU), and the only one in the Rocky Mountain region.

- Offering approximately 3,600 courses in 150 fields of study, in arts and sciences, business, education, engineering, environmental design, journalism, law, and music
- Seventy-eight degree programs at the bachelor’s level, 56 at the master’s level, and 53 at the doctoral level
- Seventy-eight research centers and institutes exploring the arts and sciences, business, education, engineering, environmental design, journalism, law, music and other disciplines
- Granted over 7,400 undergraduate and graduate degrees during the 2011-12 academic year
- The top provider of Peace Corps volunteers in 2010 and 2011 among all U.S. colleges and universities, with over 2,350 alumni Peace Corps volunteers coming from CU-Boulder since the program’s founding in 1961
- The source of more than one-third of all PhDs awarded annually in Colorado Home to four Nobel laureates (three in physics; one in chemistry) and four National Medal of Science winners
- Seventy-six new companies—from biotechnology, to aerospace, to renewable energy—based on CU faculty research discoveries since 1994, with over \$1 billion in follow-on funding for those companies
- Faculty, staff, and students serving over 335,000 Coloradans each year through community and faculty outreach programs—with additional efforts across the nation and around the world
- A national leader in Science, Technology, Engineering, and Math (STEM) education research and innovation with a campus-wide STEM education research center launching in September 2012
- Research partnerships with federal labs across the Front Range of Colorado, in addition to dozens of research collaborations in countries all over the world
- Awarded more than \$380 million in sponsored research funding in fiscal year 2012
- The only public university in the United States to design and build instruments that have flown on NASA missions to every planet in the solar system (as well as Pluto)
- Tied for #1 in atomic/molecular/optical physics with the Massachusetts Institute of Technology (MIT) every year since 2006 in the U.S. News & World Report graduate programs ranking
- The largest contributor to the University of Colorado’s \$5.3 billion in overall economic impact on the state of Colorado in fiscal year 2011–12
- The first public university to open its doors in Colorado and the flagship of the four-campus University of Colorado System, which also includes:
  - University of Colorado Denver
  - University of Colorado Anschutz Medical Campus
  - University of Colorado Colorado Springs

**“The Nimble Storage arrays can easily sustain the high IOPS load we need to support our virtual desktop environment.”**

Robert Dixon  
Director of Information Technology,  
CU-Boulder Housing & Dining  
Services



211 River Oaks Parkway, San Jose, CA 95134  
Phone: 877-364-6253; 408-432-9600  
Email: [info@nimblestorage.com](mailto:info@nimblestorage.com)  
[www.nimblestorage.com](http://www.nimblestorage.com)



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