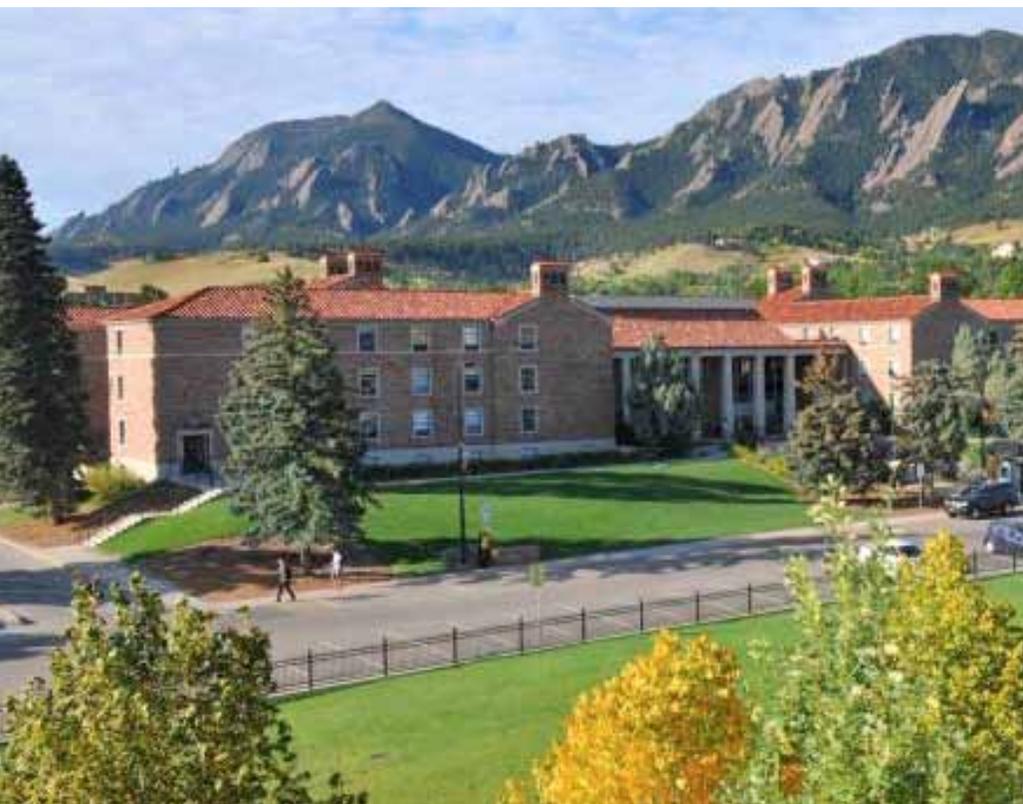


University of Colorado Boulder – less costs, more security

University of Colorado Boulder leverages Dell Wyse cloud client computing to decrease IT complexity and costs, and increase security for housing and dining services.



Customer profile

Colorado
University of Colorado at Boulder

Company	University of Colorado at Boulder
Industry	Education—Higher Ed
Country	US
Employees	600

Challenge

- Maintain system security to ensure smooth delivery of services
- Make living on campus attractive and affordable
- Optimize cost and energy efficiency

Solution

- Virtualized Desktop, VDI with Citrix XenServer and Dell Wyse C90LEW thin clients

Results

- Reduced system vulnerability, eliminating approximately 4 hours of downtime a week and dramatically reducing the business risk of exposure to malware
- Reduced system maintenance needs by 20 percent immediately and will allow for reallocation of 50 percent of support staff time to other projects when implementation is complete
- Delivered 50% cost savings on endpoint devices
- Cut energy use of devices by more than 90%, for annual savings of \$32,000

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Robert Dixon
Director of Information Technology
for HDS University of Colorado Boulder

“We average at least one database system update every month, and we need to make sure that all these changes and updates still allow the interfaces to work with each other. With VDI, we only have to make sure it works well on the master image – and then we know it will work well everywhere.”

*Robert Dixon
Director of Information
Technology for HDS
University of Colorado
Boulder*

At the University of Colorado Boulder, approximately 8,000 students live on campus, and many others regularly dine at campus facilities. The job of housing and feeding those students in a welcoming and cost-efficient way falls to the university's Housing and Dining Services (HDS) group. HDS is the university's largest auxiliary department: with 600 staff, it hires the most students (1,200), and is in charge of 25 buildings – approximately 30 percent of all campus buildings square footage.

Cost efficiency is important to HDS, because it helps keep the university affordable. But HDS also works hard to make living on campus an attractive option. All freshmen have to live on campus, but everyone benefits when upperclassmen, too, choose to live on campus: HDS keeps rooms filled for maximum revenues, and the dorm atmosphere improves with greater age diversity. Providing students well-maintained facilities, security, and quality services are just as important to supporting HDS's mission as cost efficiency.

HDS has a substantial budget and runs like a small corporation of approximately ten businesses focused on programs including residential housing and family housing, residence life programs, dining, facilities, summer conferencing, children's center, finance, HR, payroll, and Information Technology. IT provides support for 500 workstations and 155 databases, of which 20 are critical business systems in these areas. IT additionally administers the campus ID card and provides security systems consisting of 5,300 standalone electronic locks, 250 wired electronic locks, and 250 IP cameras and video surveillance. Robert Dixon, director of information technology for HDS, was intrigued by the promise of virtual desktop infrastructure (VDI), seeing it as a way for HDS to continue delivering quality services more cost effectively by improving IT: enhancing system security, reducing maintenance, cutting costs and energy use, and improving mobility. When he took a closer look at virtualized desktops in 2009,

he realized that VDI could now handle all of HDS's applications and databases. He began evaluating cloud client hardware, and decided that Dell Wyse thin clients offered the best value for the level of performance the university needed – all in a compact and power-efficient footprint.

Solution

A VDI that supports access to 155 databases and more than 20 applications

Starting in 2009, HDS implemented 10 Citrix XenServer hypervisor platforms for virtual computing and an AppSense account profiler supported by Cisco UCS blade servers, Nexgen storage, and Nexus switches. Today the VDI provides Dell Wyse thin client access to all of HDS's critical databases and applications, including those with online e-commerce functionality.

The team began by putting the applications that were easiest to virtualize – including the Microsoft Office suite – on the VDI and rolling out Dell Wyse devices to workers who needed just those applications. They then added applications to the image and deployed Dell Wyse thin clients more widely.

Many users now access the VDI using Dell Wyse thin clients, and another 150 will be deployed shortly. The thin clients clip onto the backs of 24" LED monitors with built-in speakers and have wireless keyboards and mice.

Each Dell Wyse thin client can support any staff member, because just one system image provides access to the full range of applications that the department uses. Approximately 40 of the thin clients are shared by multiple environmental service workers and dining workers: employees who don't require extensive computer access every day, but use it to check e-mail, submit time cards for approval using the Kronos time and attendance system, and take care of other administrative tasks. More specialized users have their own thin clients to work with database systems from CBORD, including the dining Food Service Suite and catering applications, and the Housing Management System for residence life and finance that tracks students, rooms, payments, and judicial incidents. Facility workers use the TMA maintenance management application to track service requests and record progress in resolving them.

Benefits

Improved security, easier maintenance, cost and energy savings, and increased agility

The IT department has already begun seeing improvements in system security, reduced maintenance, cost and energy savings, with increased agility.

Thin clients protect systems from viruses

Dell Wyse thin clients protect HDS from viruses, trojans, and other malware issues. Dixon says the support desk used to spend approximately four hours every week on such issues. Now, if IT suspects a virus on a thin client, the user can simply shut it down and reboot it like a new machine.

Reduced maintenance time frees up staff to add more value

"There's constant maintenance with the individuality of standalone workstations" comments Dixon. "Very quickly you start running into user issues or software inconsistencies." By reducing

– and ultimately almost eliminating – standalone computers, Dixon has begun to see a reduction in time and effort spent supporting and maintaining virtual desktops over traditional workstations.

The team takes approximately 20 minutes to set up each thin client, compared with the two hours to set up a new workstation. Dell Wyse hardware requires virtually no maintenance once the units have been deployed.

IT no longer has to spend as much time managing individual software packages. "Virtualizing applications has been, and will be, tremendously helpful," says Dixon. "Once a virtual image works, it works on all machines. If there's a problem, we can fix it for everyone by remote access into the image on the servers." So far, HDS hasn't seen significant maintenance savings because the team is still maintaining both old and new systems during the transitional deployment. But Dixon is confident those savings will come. "Staff that have a thin client aren't calling to say something's wrong with an individual workstation image," he points out. "Eventually we'll just have one image that's identical for all users. Issues won't be individual anymore: either something will work for all machines, or it won't. And we can easily fix a problem centrally, it will be resolved everywhere."

Dixon is also looking forward to freeing staff from support activities. "My staff could be even more effective if they had more free time to train users and help them be more productive," he says. "Then individual team members would have other opportunities. For example, one of my staff has skills in audiovisual technologies. As soon as I can free him up from the support desk, I could put him on our next project, which is to deploy dozens of digital signage devices. Others can shift from desktop support to advancing our mobile computing initiative."

"VDI is initially more complex than just setting up a computer. And as we've overcome the initial bugs staff are realizing VDI benefits and the mobile opportunities it can provide. They're impressed that this tiny Dell Wyse unit can deliver all the functionality of bulky desktop devices at a fraction of the energy usage."

*Robert Dixon
Director of Information
Technology for HDS
University of Colorado
Boulder*

Cost and energy savings reduce the department's cost and ultimately the students' costs, as well as the university's carbon footprint

Thin client workstations cost about half as much as the \$1,200 workstations that the department used to purchase for all the functionality and performance HDS needs to maintain quality of its services. Plus, Dixon expects that each thin client could last twice as long as a workstation, saving \$1,800 for each thin client used over a seven-year period compared to a standard workstation. Sustainability is important to CU-Boulder. The Dell Wyse units use just 6-12 watts of power instead of 70-250 Watts for a standard workstation. Sustainability is important to CU-Boulder. The Dell Wyse units use just 6-12 watts of power instead of 70-250 Watts for a standard workstation. That's about \$80 in energy savings per thin client per year or about \$40,000 annually for the department. Thin clients also address other sustainability concerns: they are lead free, recyclable, and lighter, so they ship for less than

heavy workstations, which also reduces their carbon footprint.

VDI helps HDS keep its systems consistently updated

HDS is leveraging its VDI to simplify its transition to Windows 7. "If it weren't for VDI and our Dell Wyse devices, we'd have to sneaker-net images to all those boxes," comments Dixon. "Even if we duplicated hard drives on the workstations, we'd only be able to do about two of those a day." It's much faster just to implement Windows 7 in one place – on the VDI – and have users get the immediate benefits of the new OS without any of the traditional difficulties. The team often has to update critical databases. "We average at least one major database system update every month," says Dixon. "And we need to make sure that all these changes and updates still allow the interfaces to work with each other. With VDI, we only have to make sure it works well on the master image – and then we know it will work well everywhere."

"For me, the fact that we were able to put it on a VDI and access it with Dell Wyse devices means that cloud client computing is powerful enough to meet the needs of most universities, colleges, and companies. VDI has come a long way, and our Dell Wyse thin clients bring it to our users in an elegant, user-friendly, and energy-efficient way."

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ROI factor	ROI calculation	Annual cost avoidance
Reduced costs of hardware	\$600 savings for each workstation replaced by a thin client	For projected 400 thin clients, \$240,000 in initial savings
Longer life cycle: 7 years vs. 3	Using the same thin client for 7 years instead of buying 2 PCs over the same period saves approximately \$1,800	For 400 thin clients, projected \$720,000 in hardware savings over 7-year period
Improved system security	Reduction in downtime and a huge reduction in potential damage from trojans and malware	Saves approximately 4 hours of downtime a week; reduction in system vulnerability is extremely valuable but difficult to price
Faster unit setup	20 minutes to set up a thin client; 2 hours for a desktop	For 400 thin clients replacing desktop units, savings of almost 700 hours
Reduction in support overhead	Instead of having 1 employee support 125 desktops, 1 can now support 250	Frees up the equivalent of 2 FTEs for other projects
Lower electricity consumption	Energy savings of \$80 per thin client annually	For 400 thin clients, projected savings of \$32,000 annually





Less costs for the University and students.

“The breadth, width and depth of what we are doing with virtualization for Housing will change how computing is done at other universities.”

*Robert Dixon
Director of Information
Technology for HDS
University of Colorado
Boulder*

Conclusion

Dell Wyse helps HDS meet the university’s needs today – and anticipated future requests

“With VDI, we’re already seeing savings in power, hardware, and maintenance,” says Dixon. “Plus, the administrative control we’ve gained is impressive.” He plans to replace 95 percent or more of HDS’s workstations with Dell Wyse thin clients in the next year.

In addition to enabling HDS to maintain day-to-day service levels while saving money, the VDI initiative supports HDS’s goal of making on-campus living more attractive. For example, the team is considering packaging up all the applications students are likely to want into a student VDI desktop, available for Housing residents, so students won’t need to go to computer labs.

HDS is also in the process of leveraging VDI to improve its staff members’ quality of life. The IT department is launching a pilot using tablets for mobile-access to the Citrix virtual desktop. If that works well, more HDS staff could work from home, cutting commuting costs and energy use while boosting employee morale.

“Our mix of databases and applications is unusually complex and demanding,” observes Dixon. “For me, the fact that we were able to put it on a VDI and access it with Dell Wyse devices means that cloud client computing is powerful enough to meet the needs of most universities, colleges, and companies. VDI has come a long way, and our Dell Wyse thin clients bring it to our users in an elegant, user-friendly, and energy-efficient way. Dell Wyse units have helped us serve the university and students better by keeping costs down and service levels up.”

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