SUNY Orange Community College

Case Study

SUNY Orange cuts cost of delivering high-quality education with revolutionary Wyse cloud PCs

Challenge: Support students sustainably

SUNY Orange County Community College was the first county-sponsored community college in the State University of New York (SUNY) system. The college continues to prove its reputation as an innovator in meeting the needs of students with a range of credit and non-credit programs at its campuses in Middletown and Newburgh, and satellite locations across Orange County, NY.

SUNY Orange strives to deliver a high-quality education within a tight budget and with a view to environmental sustainability. So, when two computer labs at the Middletown campus needed wholesale replacement of their eight-year old PCs, cost efficiency and sustainability were key criteria in choosing the new machines – as was reliability.

Most days, five or more of the PCs in the two labs would be out of action, placing extra maintenance demands on the college's IT staff and forcing students to wait for lab time. Faculty complained to Kenneth Kempsey, director of user support and operations at SUNY Orange, about the impact of down time on their students. Many community college students have to juggle their studies with work and family commitments, and simply can't wait around for computers to be free.

Kempsey and his team sought a solution that would enhance the educational experience by increasing up time for students in the college's busy computer labs. At the same time, they realized that any successful technology implementation in the labs could provide a foundation for updating systems that support other important activities across the college. To meet budgetary and sustainability requirements, any new machines considered would have to cost less than standard PCs, last longer, use less power, and require less maintenance and fewer repairs.

It was a tall order, but after reviewing their options, Kempsey's team realized they could meet it in full using Wyse cloud PCs to gain the benefits of a traditional virtual desktop infrastructure (VDI) – centralized images and management – plus the local execution that VDI can't provide. Local execution is important for the processing-intensive applications that SUNY Orange runs in its labs.

Viewpoint

"Of all the suppliers we considered, Wyse had the best products and the best reputation. And Wyse also offered the most turnkey option – we didn't have to buy additional software to support virtualization."

KENNETH KEMPSEY,
DIRECTOR OF USER SUPPORT AND OPERATIONS
SUNY ORANGE

Closer to all our goals

‘More Wyse cloud PCs will bring us closer to all our goals: educational, financial, and environmental.’

KENNETH KEMPSEY,
DIRECTOR OF USER SUPPORT AND OPERATIONS
SUNY ORANGE

“Of all the suppliers we considered, Wyse had the best products and the best reputation,” comments Kempsey. “And Wyse also offered the most turnkey option – we didn’t have to buy additional software to support virtualization.” Kempsey told the academic body that he could either buy 30 PCs with the budget available – or install 46 Wyse cloud PCs and save power, save refresh cycles, and have money left over for additional support and a new IBM Server for VM. The academic body chose the Wyse solution.

Solution: Cloud PCs puts processing power on desktops, keeps complexity in the data center

The first Wyse implementation was of 46 Wyse model R00L cloud PCs, each with 1 GB of RAM, in SUNY Orange’s math and engineering and literature labs. With the success of that first implementation, SUNY Orange rapidly ramped up to 217 units – mostly Wyse R00LEs with 1.5 to 2 GB of RAM – and is planning to implement at least 100 additional units in the next year. Wyse units act as kiosks for the Student Services organization, delivering reliable access to information about counseling, financial aid, and administrative details. They provide interactive access to information in 22 “smart” classrooms, where they power smartboards or project images of screens. Kempsey's team also replaced traditional PCs with Wyse cloud PCs in the testing labs and deployed Wyse thin clients in the new library facility.

All across campus, Wyse Streaming Manager (WSM) delivers the Windows OS and applications to the Wyse cloud PCs in real time over a standard 10 GB LAN, so processing happens at the desktop, while the hard drive stays in the data center. WSM integrated smoothly into SUNY Orange’s VMware environment, right out of the box, without requiring additional software or configuration.

In Middletown, the data center now has two clusters with two cores, each with an appliance server and a virtual machine. In Newburgh, two mirrored IBM blade servers with PCI express solid state devices that deliver high performance and reduced bootup times. In total, Kempsey’s team manages 14 standard images, customized for different labs and groups or users.

Unlike VDI solutions, this combination of Wyse cloud PCs and WSM enables SUNY Orange to offer high-performing PC-only applications without modification. That’s particularly important in the math and engineering lab, where students work on applications with heavy processing needs, including Microsoft Visual Studio, Electrostatics 3D, AutoCAD, Home Studio 2004, and Microsoft Office 2007. Many of these programs are too expensive and too processing-intensive for students to run on their own PCs, so the lab is a critical component of academic success in many math and engineering courses.

Students working in the reading/writing lab don’t need quite as much local processing. For the most part, they’re using Microsoft Word to write papers, but they still need to be in the labs, where they clock in and out to show that they’re putting in the required number of hours for their courses. Other groups – such as students using the student services kiosks – use the Wyse thin clients to access web-based applications.

The capability to stream videos and music was important to SUNY Orange, both for students to access multimedia materials and also to build their overall technical literacy. The Wyse cloud PCs, which have a 1.5GHz superscalar processor with 2 GB of RAM, can stream five or six videos at once.

Benefits:

Less expense and more performance with cloud PC desktops

Since implementing the Wyse cloud PCs, SUNY Orange has increased performance and uptime for its students, all while decreasing maintenance and management requirements, saving money on hardware and personnel time, and achieving measurable increases in sustainability.

Cloud PCs don't break or develop software problems

'Managing 20 Wyse cloud PCs takes the same amount of IT time as managing one traditional PC. As we learn more about the functionality of Wyse devices, we're taking just minutes to complete some administrative tasks that used to take hours. Once we set up the server, it took us six hours to take down the PCs, and about three hours to put all the Wyse cloud PCs in place, technicians plugged them in and walked away.'

KENNETH KEMPSEY,
DIRECTOR OF USER SUPPORT AND OPERATIONS
SUNY ORANGE

Students and faculty enjoy increased performance and reliability

The combination of Wyse cloud PCs and WSM delivers performance that's as good as a high-end PC can deliver, without the security and maintenance issues that can slow a PC down. For example, SUNY Orange no longer needs to run Faronics Deep Freeze on its PCs to protect workstation configurations from accidental or malicious damage, because each machine's session is protected in the data center. Students and systems are better protected than before – and, by discontinuing use of Deep Freeze, SUNY Orange dramatically reduces boot times and no longer has to deal with the hard drive failures that tend to result from using Deep Freeze.

Students can make more efficient use of their time now that they no longer have to wait for system response. At the Newburgh campus, Wyse cloud PC boot times are only 40 seconds, dramatically less than the several minutes it takes for a PC using Deep Freeze to boot up. Application response time is rapid, and video streaming is seamless.

At least as important as the performance gains of the new cloud PC desktops is their increased reliability. Students, faculty, and IT staff all agree that the best feature of the new labs is that the Wyse cloud PC devices are never out of commission awaiting a hardware or software fix. Students are much more likely to find an available computer when they need one, so they can complete their work on schedule, and teachers can stay on track with their lesson plans.

"Each semester we averaged about 15 work orders per lab, to fix PCs," Kempsey recalls. "Now, we're down to just a few." Plus, Wyse cloud PCs never cause students to lose their work. Kempsey describes how one day, a switch connecting the Wyse cloud PCs with the servers rebooted, and all the cloud PCs locked. But when the cloud PCs rebooted moments later, all the students' work was there –
it had been saved automatically.

Impressed by the initial implementation, SUNY Orange decided to switch its student testing lab from PCs to Wyse cloud PCs. Previously, though the student testing lab held 20 PCs, nobody scheduled tests for more than 12 students because they doubted there would be enough functional machines. "Now we go ahead and schedule for the full 20 students," says Kempsey. "We know we can count on the Wyse cloud PCs."

More manageability, less maintenance

While departments within the school decided to switch to Wyse cloud PCs for the greater performance and reliability, what most impressed Kempsey's team was the units' manageability. With the Wyse solution, the SUNY Orange IT team can react promptly if it needs to eliminate a software vulnerability or add a new feature. "Previously, updating just the labs' 46 PCs with new software or patches was a task that could take up to 32 hours, so we had to wait until vacations," Kempsey explains. "Now, we can update images and applications for every Wyse cloud PC on campus on the fly, and we don't even need to leave the data center to do so." Kempsey's team changes the image on the server and moves it to WSM. The next time a Wyse cloud PC logs in, it automatically accesses the new software. Kempsey and his team can now install an application for use by dozens or even hundreds of Wyse cloud PCs in less than one hour of hands-on time.

Day-to-day troubleshooting and maintenance tasks have all but gone away: Wyse cloud PCs don't break or develop software problems. Most issues only require a simple reboot. "Managing 20 Wyse cloud PCs takes the same amount of IT time as managing one traditional PC," comments Kempsey. "As we learn more about the functionality of Wyse devices, we're taking just minutes to complete some administrative tasks that used to take hours."

Even implementation took very little time. "Once we set up the server, it took us six hours to take down the PCs, and about three hours to put all the Wyse cloud PCs in place," reports Kempsey. "Technicians plugged them in and walked away."

Reducing carbon footprint

While conventional desktop PCs consume an average of 85 to 110 Watts or more per year, Wyse cloud PCs typically consume 6 to 15 Watts – or up to 22 Watts when including the prorated server operation and data room cooling. Wyse calculates that for 217 cloud PC desktops over three years, an organization might spend $5,600 on energy costs, but $20,000 to $50,800 for 217 conventional PCs. The carbon footprint of operating Wyse cloud PCs can be one-tenth the footprint of operating the same number of regular PCs.

On the back end, integration of Wyse WSM software and hardware with SUNY Orange's VMware-based system went smoothly. "WSM runs well in our virtualized environment, right out of the box, while other solutions would have required more work on our part," says Kempsey.

Wyse Cloud PC desktops deliver cost savings and sustainability, now and in the future

Wyse cloud PCs started saving SUNY Orange money right away: the Wyse units cost approximately half what the university had been paying for traditional PCs. "One department offered us some money to replace the PCs in the student testing lab," comments Kempsey. "If we'd been replacing those PCs with new PCs, we could only have replaced half of them – but with almost the same amount of money we were able to replace all the older PCs with Wyse cloud PCs."

That's just the start of the predicted hardware savings. The longer life cycle of Wyse cloud PCs also contributes to their cost-effectiveness and sustainability. A traditional PC typically becomes obsolete after just three years because of advances in technology. With no local hard drive and no drives or fans to fail, Wyse cloud PCs continue to be useful for five to seven years – approximately twice as long. Over a six-year period, every PC that SUNY Orange replaces with a Wyse cloud PC will save the college between $1,000-$1,400. Plus, this longer lifespan reduces the environmental impact of Wyse cloud PCs compared with regular PCs, both in the raw materials and energy required to manufacture the units, and in the amount of waste generated at the end of the units' useful life.

The security of the Wyse infrastructure also yields unexpected savings for SUNY Orange. "We no longer need the Deep Freeze security package, which saves us about $25 per computer, per year," comments Kempsey. "Plus, we don't have to spend as much time preventing or recovering from problems caused by malicious software."

While conventional desktop PCs consume an average of 85 to 110 Watts or more per year, Wyse cloud PCs typically consume 6 to 15 Watts – or up to 22 Watts when including the prorated server operation and data room cooling. Wyse calculates that for 217 cloud PC desktops over three years, an organization might spend $5,600 on energy costs, but $20,000 to $50,800 for 217 conventional PCs. The carbon footprint of operating Wyse cloud PCs can be one-tenth the footprint of operating the same number of regular PCs.

ROI factor	ROI calculation	Cost avoidance
Reduced costs of hardware	Immediate $400 savings for each PC replaced by a Wyse cloud PC	For 217 cloud PCs, $86,800
Greater availability/ reduced downtime	10% of PCs down at any time; no measurable Wyse cloud PC downtime	Avoided hours of downtime and IT time spent on repair for 217 cloud PCs
Longer life cycle: 6 years vs. 3	Using the same Wyse cloud PC for six years instead of buying two conventional PCs over the same period saves $1,000-$1,400	For 217 Wyse cloud PCs, projected $217,000-$303,800 in hardware savings over 6-year period
Lower electricity consumption	Conventional PCs consume an average of 85 to 110 Watts; Wyse cloud PCs typically consume 6 to 22 Watts, including server costs, for a savings of 79-100 Watts per PC per year	For 217 Wyse cloud PCs, savings of 17,143 to 217,000W per year
Reduced electricity costs	For 217 Wyse cloud PCs over three years, an organization might spend $5,642 on energy costs, but $26,040 to $56,420 for 217 PCs	For 217 Wyse cloud PCs over three years, savings of $20,398 to $50,778.

More time

‘The Wyse cloud PC implementation frees me from having to fight some fires, which gives me more time to be proactive and properly train my staff and prepare the user environment. It’s like buying top-of-the-line PCs, but with excellent manageability. The time freed from maintenance also enables me to build my role as the face of IT in the college community’

KENNETH KEMPSEY, DIRECTOR OF USER SUPPORT AND OPERATIONS
SUNY ORANGE

Conclusion: Wyse helps SUNY Orange deliver high-quality education, while meeting budgetary and environmental requirements

The new Wyse cloud PC implementations at SUNY Orange are popular with all members of the college community, particularly students and teachers in the labs. The teachers appreciate being able to stay on schedule with their lesson plans, without having students lag behind for lack of computer time. Students like knowing that the computers will always be working, and that they won’t lose work in progress. Kempsey and his staff appreciate the dramatic reduction in maintenance requirements that they’ve experienced as a result of the switch.

“The Wyse cloud PC implementation frees me from having to fight some fires, which gives me more time to be proactive and properly train my staff and prepare the user environment,” explains Kempsey. Future plans include netbooks for faculty and a dual-boot capability, so users can boot to Windows XP or Windows 7 operating systems from the same Wyse cloud PC, depending on the applications they wish to access during any given session. As Kempsey's team observes how the use of the machines evolves, they are planning to buy more of the 1.5 GB and 2 GB cloud PCs. “It’s like buying top-of-the-line PCs, but with excellent manageability,” he comments. Kempsey and his team plans to phase in an additional 100 Wyse cloud PCs in the coming year, and ultimately sees SUNY Orange moving towards a 1:1 ratio of conventional PCs to Wyse cloud PCs.

“The time freed from maintenance also enables me to build my role as the face of IT in the college community,” says Kempsey. “I do rounds, talking to faculty, staff, and students about how well things are working, exploring ideas for the future. This gives me the information, the connections, and credibility I need in order to make the case for additional resources – including many more cloud PCs in our classrooms and labs. From what I’ve seen so far, more Wyse cloud PCs will bring us closer to all our goals: educational, financial, and environmental.”

Students notice faster performance, higher availability

When Kempsey and his team rolled out the Wyse cloud PCs in the labs, most students said nothing – a welcome change from the complaints he’d been used to hearing about availability and performance problems. Many didn’t notice the switch at all, except in the hardware. But those who were using high-performance applications immediately noticed faster response times, and were pleased that they were able to complete their assignments more rapidly.

“Students commented that they were getting better performance than ever, and after a few weeks they started noticing that machines were never down. Many community college students have other obligations, such as jobs or young children, and they particularly appreciate this improved reliability, because it helps them stick to their schedules,” says Kempsey.

Teachers are pleased that they no longer have to deal with technology excuses for not getting work done, and can keep moving ahead with their lesson plans for the term. But that was just the start. When faculty started using the Wyse cloud PCs through the smart classroom implementations they needed to learn about logging in to Novell storage, so there was a learning curve. “But they picked it up quickly,” says Kempsey. “And now they’re even more enthusiastic about the Wyse cloud PCs, because they appreciate the convenience of being able to access their files from any cloud PC on campus.”

Summary

Customer

- SUNY Orange County Community College
- 5,000 students
- 2 campuses and other satellite locations

Challenge

- Increase availability of computing resources to support education
- Refresh technology cost effectively
- Deploy a sustainable solution

Solution

- Centralized environment with Wyse cloud PCs connected to backend servers with Wyse Streaming Manager

Results

- Increased availability and performance of computers
- Saved money on hardware compared to purchasing PCs
- Reduced IT maintenance requirements
- Reduced power cost and carbon footprint

About Wyse Technology

Wyse Technology is the global leader in Cloud Client Computing. The Wyse portfolio includes industry-leading thin, zero and cloud PC client solutions with advanced management, desktop virtualization and cloud software supporting desktops, laptops and next generation mobile devices. Cloud client computing replaces the outdated computing model of the unsecure, unreliable, energy-intensive and expensive PC, all while delivering lower TCO and a superior user experience. Wyse has shipped more than 20 million units and has over 200 million people interacting with their products each day, enabling the leading private, public, hybrid and government cloud implementations worldwide. Wyse partners with industry-leading IT vendors, including Cisco®, Citrix®, IBM®, Microsoft, and VMware® as well as globally-recognized distribution and service partners. Wyse is headquartered in San Jose, California, U.S.A., with offices worldwide. More information can be found at www.wyse.com or by calling 1-800-GET-WYSE.

CALL WYSE TOLL FREE: 800-438-9973 www.wyse.com

WYSE