Acing the test with HP Virtual Desktop Infrastructure

Yakima Valley Community College will save $2.5 million over 10-year lifecycle by virtualizing 1,000 desktops with HP Virtual Desktop Infrastructure and HP thin clients

Yakima Valley Community College

"With HP technology and TechPower Solutions, we've made a successful transition to a virtualized environment. It has helped us reduce costs and free up IT staff time for more strategic projects."
—Scott Towsley, Director of Technology Services, Yakima Valley Community College

HP customer case study: server virtualization and virtual desktop infrastructure

Industry: higher education

Objective

Reduce IT capital and maintenance costs while providing an enhanced and flexible desktop learning environment

Approach

Deploy a virtual desktop infrastructure using HP BladeSystem and HP StorageWorks SAN with HP thin clients and VMware

IT improvements

- 80% reduction in software upgrade times
- 98% reduction in desktop recovery times
- 24-fold faster desktop deployment
- 80% reduction in refresh times for computer labs

Business benefits

- Projected $2.5 million cost avoidance over 10 years
- Projected 80% reduction in endpoint maintenance costs with thin clients
- 50% annual cost savings in capital expenditures
- 80% saved in IT travel and maintenance time per week
- 80% saved weekly in IT staff time through centralized server management

Learning more with less

Making your way in the world today starts with a solid education. Statistics show that higher education levels translate to higher earnings and lower unemployment rates[1]. But with the spiraling cost of education, a growing number of students are unable to afford a four-year university degree.

For the budget-restricted student, there's an option. Many community colleges across the country are able to offer an affordable two years of higher education for students on their way to a four-year degree. Students are increasingly choosing this option, which is pushing up enrollments at community colleges—and stressing resources ranging from classroom limits to computer lab availability.

To provide the best learning environment possible for growing numbers of students, college IT departments are looking for creative solutions to get the most out of resources with dwindling budgets. Yakima Valley Community College (YVCC) in central Washington State has looked for ways to maximize its IT resources to best serve its 12,000-plus annual students. But desktops for staff and student computer labs remain a major cost for the college.

With the help of HP Enterprise Solution Elite Partner TechPower Solutions, Inc., YVCC is reducing desktop costs and IT staff time by virtualizing its server and storage environment on HP BladeSystem and HP StorageWorks technology and providing an HP Virtualized Desktop Infrastructure (VDI) on HP thin clients.

[1] United States Department of Labor, Bureau of Labor Statistics, *Employment Projections*, **www.bls.gov/emp/ep_chart_001.htm**, May 27, 2010.

"With HP technology and TechPower Solutions, we're making a successful transition to a virtualized desktop environment," says Scott Towsley, director of technology services at Yakima Valley Community College. "It has helped us reduce costs and free up IT staff time for more strategic projects." Towsley also cautions that "introduction of this new technology presents a dramatic paradigm shift and a new set of challenges and discovery, from end-user customers through the technology staff. This is not expected to be a small project—this is major and involves everyone."

Easing the workload

While the enrollment and IT network at YVCC has grown, the IT staff size has remained the same. Work orders to address computer and network issues total nearly 4,000 per year across two campuses and three learning centers, putting a burden on YVCC's IT staff.

"The size of our staff has not grown with the increase in technology that we have to maintain at the college," says Towsley. "All our hardware requires maintenance and software updates, which means our staff has to touch a lot of hardware."

Given a reduction in state funding each of the last several years at YVCC, reducing costs is a necessity. But to remain technologically advanced while providing the best education to its students, YVCC needs to regularly update its technology. With more than 2,300 desktops for students, faculty, and staff, IT is a large expense for the college.

"Our desktops need to be replaced at least once every five years, which is a major cost," says Towsley. "And somehow we want to maintain the same level of service, despite reduced budgets and no additional staffing."

"With HP t5740w thin clients, our maintenance cost per year will be 80 percent less."
Scott Towsley, Director of Technology Services, Yakima Valley Community College

Virtualizing from head to toe

YVCC had previously virtualized servers and storage in another part of the college, and was looking for other areas to virtualize to gain similar benefits. "If you look at the cost savings from virtualization, it makes sense to extend it across the IT network to desktops," says Towsley. "If we can virtualize our servers, which are the brains of the operation, then why can't we virtualize the fingers and toes?"

Assisted by HP Enterprise Solution Elite Partner TechPower Solutions, YVCC embarked on a migration to HP Virtual Desktop Infrastructure, and decided to support it with new server and storage deployment based on a converged infrastructure platform. The deployment includes HP ProLiant BL460 G6 server blades in an HP BladeSystem c7000 Enclosure with an HP Virtual Connect Flex-10 Ethernet Module, HP Insight Control management software, HP P4500 SAN solutions, and HP Networking switches, as well as VMware vSphere and VMware View.

"It's a huge project," says Towsley. "To begin with, you have to make sure you have the right network to support it. We are making sure we put redundant power and switches in some locations, with HP Networking switches, and the virtualization has to have some redundancy as well." Towsley estimates that deploying HP Networking switches—replacing 10/100Mb switches and cabling with 1/10Gb switching hardware and fiber prior to deploying HP Virtual Desktop infrastructure—has sped up the network by 100 percent. It also provides the necessary network stability.

Saving $2.5 million over 10 years

To justify the move to a VDI, Towsley explained the cost savings to college administration. A new desktop costs YVCC more than $1,250—or $3,750 over 10 years with the college's current replacement cycle. By virtualizing with HP thin clients, Towsley estimates a cost savings of $2,500 per desktop, or a projected $2.5 million over 10 years for 1,000 virtualized desktops.

The college will also save in reduced power consumption. "We're reducing our power consumption by replacing all of the desktops with HP thin clients," says Towsley. "That's part of the goal. We reduce the amount of heat created by all the hardware, which reduces the air conditioning requirements." By replacing 1,000 desktops with HP t5740w Thin Clients, YVCC will save an estimated $23,928 in power costs per year.

On the college's previous desktops, a typical software upgrade took one week for a lab of 37 desktops. As the college moves to virtualized desktops with HP t5740w Thin Clients, the same upgrade takes part of a day—an estimated 80 percent reduction in staff time. "To upgrade software, we just go in and update the master and send it out to thin clients with a few clicks of the mouse," says Towsley. "We won't have to touch every keyboard anymore."

80 percent less maintenance cost

Because updating and maintaining a computer is time-intensive, technology research company Gartner calculates the total cost of ownership for $1,200 in computer hardware to be as much as $5,867 per year over four years.[2] More hardware means increased administrative time, driving up total cost of ownership.

"With HP t5740w Thin Clients, our maintenance cost per year will be 80 percent less," says Towsley. "HP estimates a 25 percent cost savings in capital, but for YVCC I actually found our cost savings in capital to be closer to 50 percent."

"With our HP BladeSystem ProLiant BL460c G6 server blades, we can bring up a brand-new server in 20 minutes once a master server image is created."
Scott Towsley, Director of Technology Services, Yakima Valley Community College

Centralizing management

With a small staff and large workload, IT uses HP Insight Control software for easier remote management and greater staff access on the HP BladeSystem ProLiant BL460c G6 server blades. "Before virtual desktop infrastructure, the help desk staff would manage individual desktops and printers," says Towsley.

Scott Barker, manager of public sector sales for TechPower Solutions, Inc., the college's HP partner, adds that HP Insight Control management software allows staff to manage both physical and virtual servers from one interface, with fewer server visits. "HP Insight Control is critical for proper network operations," he says. IT saves three hours per week in server management with HP Insight Control.

The IT staff is now able to manage at the server level, with greater degrees of functionality. "The staff can manage permissions, where before you couldn't give access to one piece of the server and not another," says Towsley. "They can be provided higher-level functionality in using the server. It's more reliable and user friendly because we have more staff that can now work at the higher level."

Creating scalable environments

To sustain the success of the HP Virtual Desktop Infrastructure, especially as the college continues to add thin clients, the IT team needed a reliable and scalable infrastructure.

Barker explains: "The HP Virtual Connect Flex-10 Ethernet Module and the performance of the HP BladeSystem ProLiant BL460c G6 server blades, along with the selection of the HP StorageWorks P4500 G6 SAN, were all critical to the success of the HP Virtual Desktop Infrastructure," he says. "What YVCC wanted was something they could scale to accommodate unknown parameters for virtual desktop growth. The HP Virtual Desktop Infrastructure allows the college to scale and eventually convert most of the 2,300 desktops to thin clients."

In the future, the college hopes to deploy HP thin clients to its satellite campus. "If we have the right bandwidth to run a virtual desktop 60 miles away," says Towsley, "that would significantly ease our maintenance requirements." Towsley estimates IT would save 80 percent a week in travel and maintenance time by converting to HP thin clients at its satellite campus.

[2] "Gartner Says Effective Management Can Cut Total Cost of Ownership for Desktop PCs by 42 Percent," **www.gartner.com/it/page.jsp?id=636308**, March 10, 2008.

Another benefit to HP Virtual Desktop Infrastructure is greater staff knowledge and efficiency. "With the large number of computers we currently support, our staff doesn't have time to properly learn the technology of the hardware and software," says Towsley. "HP Virtual Desktop Infrastructure will help them become more efficient, freeing staff time to learn the technology to a greater depth while working on more strategic projects."

Refreshing computer labs in minutes

The biggest winners in a virtual desktop environment are YVCC students, who now have faster and more flexible access to new online learning tools in computer labs. "Prior to virtualization, it would take a week to refresh a single lab," says Towsley. "With HP Virtual Desktop Infrastructure, it's just a matter of selecting from pools we've created on virtual servers." YVCC has reduced its time to refresh a lab by 80 percent.

With HP thin clients, students and IT staff will no longer spend 45 minutes per week correcting an altered desktop. "When a student who's highly technical gets on a computer, they can change everything on it—the way it views, the way it accepts data," says Towsley. "Now with HP thin clients, the minute that student logs out, the desktop comes back up in the original view."

At the same time, YVCC faculty has more flexibility with the learning tools they deploy to HP thin clients. "Teachers have the option to easily swap one learning application for another," says Towsley. "Before, they had to give us a couple weeks' notice to schedule the change. Now with HP thin clients, they can practically give us a day and we could have it up."

With HP Virtual Desktop Infrastructure, the learning environment at YVCC has more flexibility and availability, with greater speed of application delivery and customization. It also allows IT to focus on more strategic projects. "For a teaching environment like YVCC to make a transition to a HP Virtual Desktop Infrastructure, we had to have reliable partners," says Towsley. "HP and TechPower Solutions were those partners for us."

Customer solution at a glance

Hardware
- HP t5740w Thin Clients
- HP ProLiant BL460c G6 server blades
- HP BladeSystem c7000 Enclosures
- HP Virtual Connect Flex-10 10Gb Ethernet Modules
- HP StorageWorks P4500 G2 SAN
- HP networking switches

Software
- HP Insight Control
- HP Virtual Connect Enterprise Manager
- VMware vSphere 4
- VMware vCenter Server
- VMware View 4.5

Operating systems
- Microsoft® Windows® Server 2008 R2 as vCenter host
- Microsoft Windows 7 Enterprise Desktop

Network protocol
- 10-GbE fiber connectivity to HP BladeSystem via Virtual Connect Flex-10 for VDI
- iSCSI storage network on separate HP Networking switches

Services
- HP consulting on HP Networking switches
- HP Support Plus 24 on server and SAN hardware

Share with colleagues

Get connected
www.hp.com/go/getconnected

Get the insider view on tech trends, alerts, and HP solutions for better business outcomes

TechPower IT SOLUTIONS