

Whatcom Community College

PROFILE



Industry

Education

Corporate Headquarters

Bellingham, Wash.

Employees

400

Annual Revenue

\$19.7 million operating budget

Website

<http://www.whatcom.ctc.edu/>

THE NUMBERS

- 10:1 server consolidation ratio
- 1,000 campus computers, 75 now virtualized
- 110 deployed applications
- 12–20 percent annual budget cuts past 3 years

IN BRIEF

Objective

In the face of increasing enrollment and decreasing budget, Whatcom Community College needed to do more with less while improving IT service to students, faculty and staff.

Solution

WCC pursued a two-pronged virtualization strategy: virtualize the datacenter to consolidate servers and simplify management, then virtualize desktops for simpler maintenance and improved end-user access to campus resources.

Business Impact

- Do more with less: accommodate increasing need and decreasing financial resources.
- Enable academic courses with on-the-fly application provisioning.
- Maintain expanding systems with no increase in IT staff.

Datacenter, Desktop Virtualization Enable College to Accommodate Rising Enrollment, Shrinking Budget

“We wanted the same vendor for both server and desktop virtualization. It helps a lot with pricing, upgrades, compatibility and support. And VMware was the hands-down winner.”

— Ward Naf, IT Director, Whatcom Community College

Enrollment goes up, as more people seek skills training, just as budgets go down. It's an odd fact of life in the world of community colleges during times when the economy falters. At Whatcom Community College (WCC) in Bellingham, Wash., the answer to the continuing need to do more with less is datacenter and desktop virtualization with VMware® software.

“Over the past 3 years we've seen 12 percent to 20 percent annual increases in the numbers of students enrolling and roughly the same percentage decreases in state budget allotments,” says Ward Naf, WCC IT director. “One of the first things an institution will target is equipment-replacement costs in the operating budget. Saving there helps retain jobs. Virtualization drives IT costs down while creating a simpler environment to manage and improving service to faculty and staff.”

WCC is where 12,000 students a year prepare for transfer to 4-year colleges or receive vocational training in such fields as nursing, paralegal work, early childhood education or computer information systems. The IT department serves students as well as 400 faculty and staff members.

Strategy Approved to Virtualize Datacenter First, Then Desktops

Before virtualizing, WCC ran its datacenter with 40 physical servers ranging in age from brand new to 7 years old. Many were reaching end of life or in need of warranty renewal. And with no SAN architecture, each file server needed its own storage resources. On the client side were 1,000 devices including desktop PCs, notebooks and Apple® Macintosh computers. Most were in student labs, in teaching stations or available for checkout. Thirty-five percent were used by faculty and staff. Maintaining these devices—troubleshooting failures, performing patches, deploying new applications—was an ongoing, costly and time-consuming IT burden.

Naf's vision, which he presented successfully to college administrators, was to virtualize the datacenter and then desktops. The cost justification alone was compelling. By purchasing the project as a capital expenditure, WCC saved \$300,000 a year in operating expenses and reduced their computer hardware investment by 50 percent over the next decade. On top of that, WCC would now be able to deploy applications on the fly—a common need in education institutions where course requirements can change quickly. And the infrastructure could be expanded and maintained without increasing IT staff.

Vendor Selection Boils Down to VMware

Before selecting VMware software as WCC's virtualization platform, Naf did his homework. He used his community college email list to communicate with peers, many of them also virtualizing for the same reasons. He attended industry events, talked to resellers and tested software. Naf considered Citrix® as well as Microsoft® solutions, but chose VMware for a number of reasons. Citrix technology seemed inadequately developed on the server side, and Microsoft lacked a full end-to-end server-to-desktop solution, he says. Meanwhile, the buzz on the community college IT grapevine revolved around the advantages of VMware technology.

"Most of my peers who'd virtualized used VMware software, were happy with it and recommended it," he says. "VMware was the hands-down winner for us, especially because our server infrastructure has to be rock solid and bulletproof."

Throughout the selection and deployment processes, Naf worked with GCS IT Solutions, headquartered in Fairbanks, Alaska. "GCS really knew what it was doing," he says. "They provided research data, were open and up-front, and delivered everything as promised."

VMware vSphere Streamlines Datacenter

The datacenter virtualization project started in the fall of 2010. Using VMware vSphere®, WCC consolidated from 40 physical servers to fewer than 20. While some domain controllers remain physical, three new Dell™ PowerEdge™ 710 servers host 30 virtual machines, for a 10:1 consolidation ratio.

"Instead of buying 20 extended warranties, we bought three fast, new servers and virtualized them," Naf says.

For storage, WCC chose a Dell EqualLogic™ PS6500E 96-terabyte iSCSI SAN and a Dell EqualLogic PS6000XVS 4.3-terabyte SSD/SAS iSCSI SAN to accommodate both the virtualized servers and file storage for students in the desktop environment. Virtualized applications include Microsoft® Exchange for faculty and staff email, Microsoft® SQL Servers, domain controllers, file servers, print servers, Web servers, development servers, and ScanFlowStore® for scanning and storing documents from Xerox multifunctional devices. The development servers are used by IT staff to build internal applications for such tasks as creating student accounts and assigning storage.

The advantages to WCC of datacenter virtualization include lower warranty costs, faster provisioning, easier IT management and improved uptime.

"Before, when you had a physical server that served three or four functions, when you had to reboot all the services all went down," Naf says. "With virtualization we increased the number of servers and split them up, so when we need to bring down a certain database server, for example, it doesn't affect the file servers also. Uptime is uninterrupted."

WCC's entire IT infrastructure is run by just seven people: Director Naf; a desktop support manager in charge of desktop rollouts, imaging and program updates; a network person in charge of switches, servers and firewalls; an application developer; a help desk person; a desktop technician who handles 1,000 desktops; and an instructional technician who runs 11 student labs and 100 classrooms. "Virtualization streamlines management such that we don't have to add staff," Naf says.

“We used VMware ThinApp to provision Microsoft Office on the fly for a last-minute computer-lab request. It took minutes, and the class went off without a hitch.”

Bill Zilinek, Desktop Support Manager
Whatcom Community College

VMware View Virtualizes Student, Faculty, Staff Desktops

After virtualizing the datacenter, WCC moved on to the desktop infrastructure. The college’s long-term strategy is to virtualize some 90 percent of its 1,000 desktops, migrate to zero clients and provide remote access to all end users. WCC started by replacing 75 end-of-life devices with Wyse® P20 Zero Clients, with plans to increase to 200 over the coming year and also virtualize an additional 200 legacy thick clients.

“Zero clients are half the cost of fat clients and last twice as long, making them one-quarter the cost,” Naf says. “And that’s not counting power and cooling savings, maintenance time and simpler application upgrades.”

WCC installed four new Dell PowerEdge 810 servers to host 800 simultaneous VMware View™ desktops, for a 200:1 consolidation ratio.

Naf counts 110 applications used across campus client devices. They include Microsoft® Office Suite and educational software such as ELLIS Master Pronunciation for teaching English as a Second Language (ESL), PASCO DataStudio data collection and analysis software for teaching physics, and Cengage Learning™ Precalculus with Limits.

Keeping all this software up to date, and keeping the machines on which it ran in operational condition, had been a big challenge. Desktop virtualization is changing all that. Now applications reside in the datacenter, with centralized image management. IT staff don’t have to touch individual machines to perform upgrades or resolve problems.

“Changing configurations, patching, moving software around when classes change locations—all these tasks are much simpler,” says Bill Zilinek, desktop support manager. “And, time to problem resolution is much less.”

Deploying new applications is fast and simple with View, he says. Recently, the director of WCC’s Community Education program called with an urgent request. A customer wished to rent WCC space to teach a course on Microsoft® Office 2010. Zilinek was able to provision the application for computer-lab desktops in minutes.

“We were able to set it up really quickly, on the fly,” Naf says. “All the user had to do was log off and log back on, and the application was there. The class went off without a hitch. The instructor and end users didn’t even know the software wasn’t installed on their machines.”

What would have been 10 hours of work took 10 minutes, with no downtime for end users, Zilinek adds. It all went smoothly, whereas past installations commonly ran into problems such as machines not booting back up properly. “Now, when an instructor needs course resources at the last minute, we can say ‘yes.’ The infrastructure is adaptable.”

WCC used VMware ThinApp™ for agentless application virtualization. The tool should greatly simplify many software migrations, including a planned upgrade to Microsoft Windows 7, Naf says.

WCC also has been testing remote access to the View desktop, starting with IT staff and then top administrators. One employee who went on medical leave was able to work seamlessly from home. WCC’s goal is to provide remote access next to all faculty and staff, and eventually to students as well.

“We’ve had a VPN but we’ve never offered true remote access before,” Naf says. “VMware View will enable users to have the same desktop and software at home or on the road that they have at the office or in class.”

Datacenter and desktop virtualization at WCC might have been driven by budget concerns, but ultimately what the college gains is a more adaptable organization, simpler IT management and better service to students, faculty and staff.

“With datacenter virtualization, we can fire up a virtual server on our existing infrastructure in less than an hour. It’s redundant, with failover,” Naf says. “We can ThinApp it, deploy it to any number of clients, thin or thick, for different academic programs as things change. With budget cuts a way of life in community colleges, virtualization makes a huge difference.”

IMPLEMENTATION OVERVIEW		
<p>VMware Products: VMware vSphere® 4.1 VMware View 4.6 VMware ThinApp</p>	<p>Applications: Microsoft SQL Exchange (800 mailboxes) Microsoft Office ScanFlowStore Educational applications</p> <p>Partner: GCS</p>	<p>Platform: Dell PowerEdge 710 servers Dell EqualLogic PS6500E SAN Dell EqualLogic PS6000XVS SAN Enterasys switches Microsoft Windows XP Microsoft Windows 7</p>

