

Writing a textbook example for educational excellence with HP technology and Denali expertise

Edmonds Community College avoids \$100,000 power upgrade while boosting performance twofold with HP ProLiant server blades, HP StorageWorks Enterprise Virtual Arrays, and creative financing



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Rod Halverson, Director of IT, Edmonds Community College

Objective

Modernize data center infrastructure and drive green IT initiatives while avoiding upfront costs

Approach

Consult with HP partner Denali Advanced Integration to plan a campus-wide energy savings strategy that includes virtualization and integrated storage, networking, and server infrastructure to lower power requirements, increase performance, and enable maximum systems uptime

IT improvements

- Green IT initiatives benefit both IT and facilities with energy-monitoring technology
- Redundant architecture provides systems failover for maximum uptime
- Twofold increase in system performance with tight integration of servers and storage

Business benefits

- \$100,000 power upgrade avoided through virtualizing server farm
- 30% reduction in energy costs due to virtualization
- Creative financing through HP partner Denali minimizes financial impact



Students of the future

Of the 20,000 students who attend Edmonds Community College each year, 5,000 are classified as “hybrid” students who combine classroom and online instruction in their pursuit of knowledge. It’s not that the classroom isn’t a nice place to be: the 50-acre campus hosts a digital recording studio, a regional transit center, an art gallery, two greenhouses, and 28 computer labs. Set into the Lynnwood, Washington, landscape 20 miles north of Seattle, Edmonds sees education through a wider lens.

HP customer case study: Converged Infrastructure

Industry: higher education



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Offering access to learning online and responding to the dynamic needs of the diverse population of the region is part of the college’s mission to the community. In recent years, meeting the terms of this mission was becoming an ever-increasing challenge. Supporting distance learning efforts and keeping its computer labs up to date in the context of the financial climate was posing problems to which college leaders had no answers.

“We had a lot of aging equipment,” recalls Rod Halverson, director of IT for the college. “Historically, we would target a few servers a year for funding for replacement, but going into these last couple of years, I knew that that wasn’t going to be an option. Our budgets were getting cut pretty drastically, so we had to come up with a different idea on how we wanted to approach a refresh.”

Aligning technology with mission

A couple of years ago, Halverson and his team began experimenting with server virtualization as a means to reduce the college’s hardware footprint. After testing the technology, Edmonds knew the power and flexibility virtualization could bring the college. “That’s when we started looking into completely virtualizing our 70 physical servers, and what ramifications that would have on our storage environment,” Halverson says.

Funding was still a big question mark for the project when Halverson was approached by the college’s vice president of finance, Kevin McKay, with an interesting idea. “The facilities department was working on financing an energy conservation project, and asked if we thought our virtualization project would fit in somewhere,” Halverson relates. “It doesn’t take much imagination to figure out that reducing 70 servers down to 12 is going to save energy, but designing this project for government funding was beyond my expertise.”

Halverson recognized the opportunity, but realized he needed to bring together campus-wide energy monitoring technology, hire contractors, and meet strict public funding requirements in order to make it happen. Based on his past experience with its products and services, HP came into the discussion. “HP has consistently been awarded Edmonds’ business on the basis of value, quality, and customer support, so that’s part of the equation we knew going in.”

Educating IT

So Halverson took the idea of virtualization-as-energy-savings to Denali Advanced Integration, an HP Elite Partner with whom Edmonds had worked on various projects for the past few years. According to Chris Gerhardt, president of Denali, the Edmonds story echoes the challenges of many other state and educational institutions today. “Over the past few years, we’d given them proposals for different projects and they’d accept the proposals, but there was always the same problem: no money,” Gerhardt recalls. “That really got us started down the path of trying to find ways to get that money to make more of these projects happen.”

Presented with the challenge, Gerhardt realized that to be a technology partner to Edmonds was going to mean more than just designing and providing IT infrastructure. “Edmonds had been a good customer, and it really came down to trying to help them achieve their objectives, and looking at their needs more holistically,” Gerhardt explains. “And what they really needed was a funding solution.”

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Chris Gerhardt, President, Denali Advanced Integration

Building the dream team

To meet the state, federal, and local energy requirements to prove the projected savings would indeed pay for the project over time, Denali and Edmonds assembled a winning team. Trane, Inc. would be the project contractor, providing the installation of sustainable heating, ventilation, and cooling systems. To provide the systems that would monitor the before-and-after power statistics needed to fund the project, Denali engaged GridNavigator, a Seattle-based provider of intelligent energy index systems.

GridNavigator developed a picture of the college's baseline energy usage by installing temperature sensors and submeters on campus. Of the 18 buildings that make up Edmonds, three had individual heating and air conditioning systems, while the remainder were linked to a central boiler and chilling system. According to Chris McDonald, director-energy management services for GridNavigator, the school was a prime candidate for an energy conservation project. "Edmonds was probably getting about 20 different energy bills each month," McDonald says.

Green IT fully realized

Based on what it learned about Edmonds' power consumption, Denali projected that the server virtualization portion of the project would save the school 30 percent on energy usage over its current solution. With GridNavigator tools in place to monitor the improvement and Trane delivering a guarantee that the installed solution will achieve specific return on investment (ROI) targets, the project got the green light.

"What's come out of this is really an understanding of a new model for green IT projects that would otherwise go unfunded," relates Gerhardt. "Instead of just talking about it, we're looking for creative ways to turn green IT into actual dollars that fund projects."

Twofold performance increase on 30 percent less energy

At the heart of the Edmonds data center are now two HP BladeSystem c7000 Enclosures, each with six HP ProLiant BL460c G6 Server Blades connected to HP StorageWorks EVA 4400 SANs. The dual systems form a physically redundant environment in case of failure or disaster, something the school's earlier environment could not offer.

Each 6-blade cluster, virtualized with Microsoft® Hyper-V software and connected to network and storage via HP Virtual Connect, now hosts virtual versions of the school's 60-plus physical application servers. Diminishing its server count not only lowered the school's energy consumption by 30 percent, it also boosted network and end-user performance. "The processing speeds we're getting out of our new HP ProLiant server blades are so much faster than what we were experiencing before," Halverson says. "We've increased our performance twofold."

\$100,000 power upgrade avoided

Before undertaking the project, the sprawling physical server environment in the Edmonds data center was pushing the school's uninterruptible power supply (UPS) to 85 percent capacity. "If we had a power outage, our UPS would have given us about five minutes for our generators to kick in—there was no room for error," Halverson says. "We had already started pricing out new units, and we were looking at a \$100,000 project."

Since virtualizing on HP server blades, Halverson and team are no longer shopping for a new UPS. "Now we're running about 30 percent off the UPS, which gives me about 20 minutes of lead time in a disaster," Halverson relates. "The project has extended the life of our current UPS, and saved us six figures on an upgrade while giving me some peace of mind."

Holistic technology seals the deal

For Denali, the transformation at Edmonds and the unique manner in which it occurred have become a model for funding projects for cash-strapped organizations. "What we learned is that you have to think about the whole need of the customer. That means thinking about the big problems these entities are facing," Gerhardt explains. "These organizations need to save money, but they don't have the capital to invest in projects that will actually save them money in the long run."

Thinking holistically and incorporating technology projects into larger energy-saving initiatives throughout the entire facility provides a new vista for green IT. "The idea that energy monitoring tools are only for the data center is very limiting. By bringing in GridNavigator solutions to enable intelligent power indexing for the whole campus, we've brought facilities and IT together," Gerhardt says. "Facilities and IT departments are going to need to work together increasingly in the future, because information technology is increasingly becoming part of the facility."

For Edmonds, the GridNavigator solution means Halverson and team can now monitor energy consumption across the campus from a single screen. "Instead of discovering energy usage in 20 different monthly bills, the campus has granular energy consumption data," says GridNavigator's McDonald. "They have the ability to watch for spikes in usage in real time, and the data is accessible anywhere there is Internet access from our Web interface."

Company profile

Denali Advanced Integration and Edmonds Community College

Edmonds Community College (www.edcc.edu), founded in 1967, supports classroom and distance learning for 20,000 students each year. Denali Advanced Integration (www.denaliai.com) is an HP Elite Channel Partner, delivering server, storage, and networking solutions to the Pacific Northwest for almost two decades. Denali helped Edmonds to fund a next-generation data center based on future energy savings, providing a future model for other educational organizations facing funding challenges.

Customer solution at a glance

Hardware

- HP ProLiant BL460c G6 Server Blades
- HP BladeSystem c7000 Enclosures
- HP StorageWorks 4400 Enterprise Virtual Array
- HP Virtual Connect
- GridNavigator Server

Software

- HP Insight Control
- Microsoft Hyper-V
- Microsoft SQL Server
- Microsoft SharePoint Server
- Microsoft Exchange Server

Operating system

- Microsoft Windows® Server 2008 R2

Network protocol

- TCP/IP

HP partner

- Denali Advanced Integration

100 percent trust

According to Halverson, making the journey would not have been possible without the expertise and support of Denali. "I had everything riding on this for the next few years of upgrades, and if it didn't work out, there was a lot at stake," Halverson explains. "This involved every server and IT service that the college uses."

With the creative approach Denali was able to craft, the project came together, giving the students, faculty, and staff at Edmonds access to the services, applications, and online learning tools the 24x7 learning environment requires. "Denali did the research. They came back with the numbers, and I felt confident that they were going to be able to do it. And they did. They succeeded with the project. We got it rolled out," Halverson says. "I was very impressed."

A textbook example

Pioneering a new funding model for green IT projects was a learning experience for Denali that can now benefit other schools. "There are more than 30 community colleges in Washington, all with similar needs and requirements," says John Convery, executive vice president of marketing and vendor relations for Denali. "There's a huge opportunity to help organizations in education and the public sector. Leveraging the capabilities of HP Converged Infrastructure through tight integration of ProLiant servers, StorageWorks SANs, and HP networking solutions will have an enormous impact on increasing efficiencies at those institutions."

With Edmonds as a textbook example of the best way forward, Halverson is proud of the project and eager to see others follow suit. "The best decision we made was to partner with Denali. They knew what needed to be done, and all the team players did their part," Halverson sums up. "I'm proud Edmonds can be a model of success."

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