Penn State

Power-savings initiative expected to deliver $800,000 annual savings

Overview

The need

With energy costs doubling, Penn State looked to reduce unnecessary power consumption from leaving classroom, lab, and departmental computers on, when they were not in use.

The solution

The University implemented an endpoint management solution that combines power, lifecycle, patch and security management to reduce energy costs while improving the reliability and security of campus computers.

The benefit

Reduced energy costs by US$288,000 per year with annual savings expected to reach US$800,000; decreased IT time required to manage classroom and lab computers; improved security with faster deployment of patches and software applications.

At the end of 2009, when electric rate caps were lifted, officials at Penn State watched as their energy costs doubled overnight. The timing couldn't have been worse. The main campus energy budget already had been reduced by US$1.5 million and staff had been challenged as part of the University's Green Initiative to lower Green House Gas emissions by 17.5 percent by 2012.

"Reducing power consumption was critical to controlling the impact of increased energy costs while supporting our overall goals to increase sustainability," says Chris Sacksteder, manager of Penn State's Systems Development Group, which provides support for classroom and lab technology and delivers common IT services to University IT support teams.

Identifying potential savings

While heating and cooling of buildings typically consume the greatest amount of power for organizations, leaving computers on when they are not in use also can increase energy costs unnecessarily. But the question for IT staff members was: How much could we save?

"Few would consider putting their computers to sleep without a good reason, so we needed to first measure the amount of power consumed by the hardware in its different power states, and then calculate the potential savings," says Sacksteder.

"We expect almost US$800,000 in annual savings, once all of our approximately 20,000 workstations are under Tivoli Endpoint Manager and similar power management settings are applied."

—Chris Sacksteder, Manager, Systems Development Group, Penn State

At the same time, with University budgets being cut in the wake of the economic recession, improved management of classroom, lab, and departmental workstations also was necessary.

"There is a push to cut IT costs by using computing resources more efficiently, and to prevent duplication of effort wherever possible," says Sacksteder. "So while the primary goal for our physical plant was to reduce power consumption, our other motivation was to gain better control of the environment. We established a team that investigated client and systems management solutions, and after a proof of concept, found that Tivoli Endpoint Manager scaled best in our environment and provided the power management component we needed. The consensus from the academic and administrative groups that participated was that this was a very worthwhile effort, both from an energy savings and systems management perspective."

Once the decision was made, however, the committee faced a new challenge: Deploy the solution in just a few months.

Solution components

Software

- IBM® Tivoli® Endpoint Manager, built on BigFix® technology

"We can now provide a much more robust computing infrastructure, more reliable computers in our classrooms, labs, and offices, quicker installs of application software that our faculty need, and faster resolution of problems, so that students and faculty can focus on what they're here to do."

—Matt Boyd, Service Manager for IBM Tivoli Endpoint Manager, Penn State

"The Office of Physical Plant was given a task of saving a large amount of money on the electric bill as soon as possible and we were also bound by the University semester calendar," says Sacksteder. "We started the proof of concept in April and our production deployment was operational by mid-August to avoid waiting another school year. It was relatively easy to implement the initial infrastructure with the root server and a few relays and it's certainly been very easy to deploy more relays as needed."

Realizing nearly $800,000 annual power savings

In terms of power savings, the University has already reduced energy costs by US$288,000 per year with aggressive settings on public systems and many faculty and staff computers. The organization expects that savings to nearly triple as faculty and staff become more comfortable with displays going off and systems going to sleep.

"When no user is logged into a workstation in one of our labs, the display is automatically turned off after five minutes of being idle and the computer enters sleep mode after 15 minutes of being idle," says Matt Boyd, service manager for IBM Tivoli Endpoint Manager, Penn State. "If a user is logged in, only the display will turn off after 10 minutes of being idle. We expect to see almost US$800,000 in annual savings, once all of our approximately 20,000 workstations are under Tivoli Endpoint Manager and similar power management settings are applied."

Tivoli Endpoint Manager balances the need for energy conservation with the IT staff's need to apply patches at night by waking up the endpoint long enough to apply required updates and then returning the computer to an energy-saving state.

The team also customized its implementation to meet faculty and staff needs. For example, a custom web application allows faculty and staff to remotely wake up any client system that they are authorized to access.

"The biggest concern among faculty is making sure that their computers are available and that they can access a file from home if they need it," says Boyd. "With Tivoli Endpoint Manager, we don't need to power systems off to achieve the savings. We can place the systems in standby and, in most cases, those systems are up and ready in a matter of seconds. Likewise in labs that run experiments 24×7, we can customize settings so that their experiments won't be affected. The 'root' Tivoli Endpoint Manager administrators are not responsible for the machines. The department and local IT staffs are the true administrators of those machines, but we believe all units will begin using the solution, as we continue to demonstrate that placing the workstations in standby will provide the power savings needed without affecting their access."

More reliable computers in the classroom

While ramping up and promoting the project, Penn State's Information Technology Services (ITS) System Development Group placed as much emphasis on the solution's system management capabilities as it had on its power management features. Today, about 34 administrative units at Penn State are participating in the Systems Management initiative, with nearly 21,000 endpoints currently under management. Faster application deployment to endpoints has helped ensure that students have access to the software they need to complete their assignments. More consistent user interfaces on campus computers makes it easier for students to work in various labs, and reduces the time IT staff spend managing computers. Streamlining operating system and application patching has enabled IT staff to improve the security of endpoints, reducing the risk of a system

compromise that can lead to the disclosure of personally identifiable information, such as student social security numbers. Improved asset discovery enables IT staff to quickly determine how many systems are nearing the end of their warranty and may need to be replaced.

"Early on, there was a misconception among some that Tivoli Endpoint Manager was strictly for power management, because it was being endorsed by the Office of Physical Plant for those purposes," says Boyd. "The systems management component is equally important. We can now provide a much more robust computing infrastructure, more reliable computers in our classrooms, labs, and offices, quicker installs of application software that our faculty need, and faster resolution of problems, so that students and faculty can focus on what they're here to do."

For more information

To learn more about IBM endpoint management solutions, please contact your IBM sales representative or IBM Business Partner, or visit the following website: **ibm.com**/tivoli/endpoint

You can get even more out of Tivoli software by participating in independently run Tivoli User Groups around the world. Learn about opportunities near you at: http://www.tivoli-ug.org

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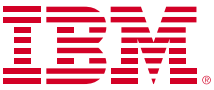
For additional information about Penn State's green IT efforts, go to: http://stream.it.psu.edu/archive



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