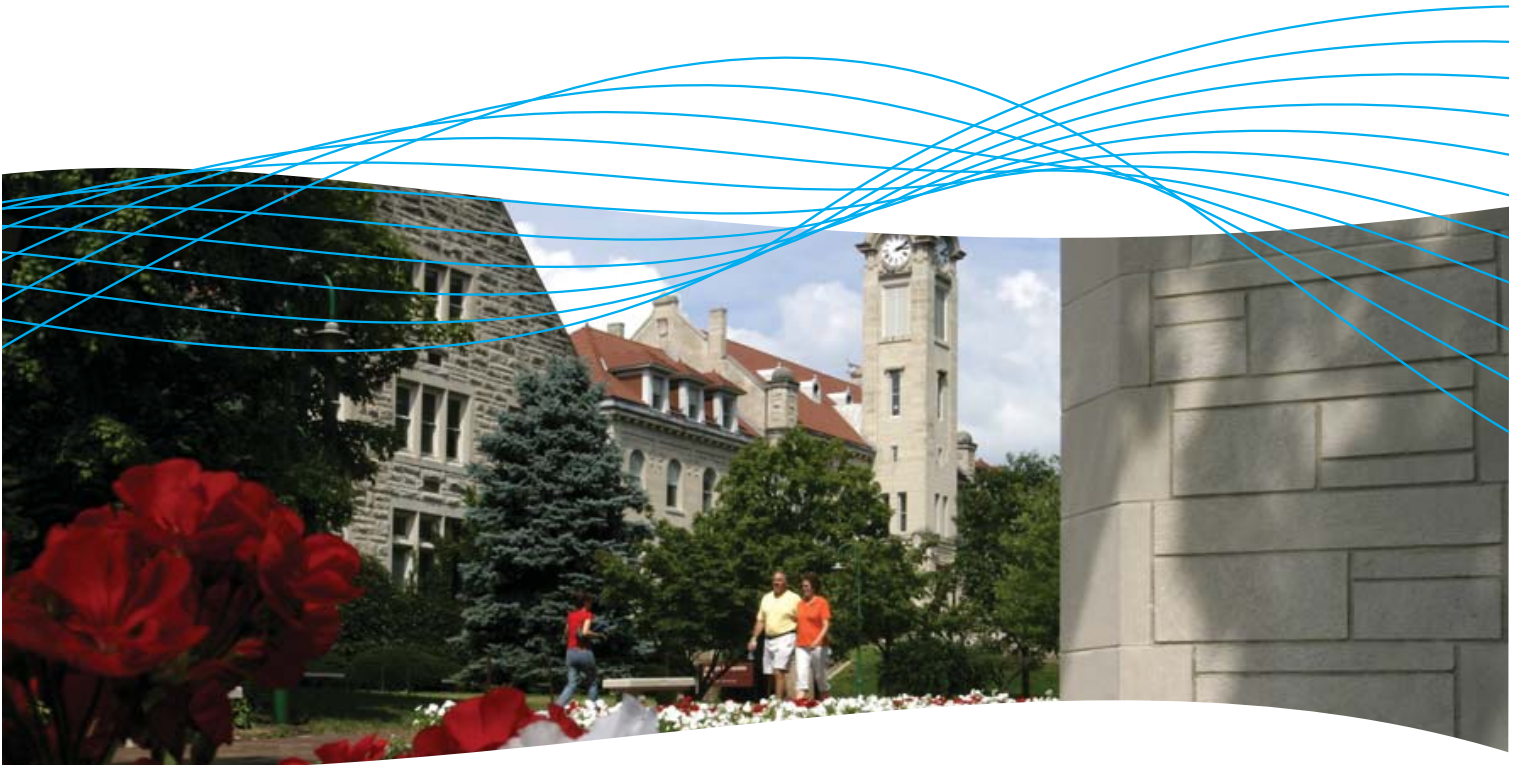


HP ProCurve

HP ProCurve delivers performance, reliability and value



"Our job as IT and networking managers is to help the university's researchers do their work, and to support the university's education mission. HP ProCurve makes it easier for us to do our jobs, in part because ProCurve's tremendous value lets us deliver more for less."

Matt Davy
Chief Network Architect
Indiana University

Summary

Indiana University is one of the premier research universities in the U.S., with a history of technology achievement and adoption. Serving the diverse and demanding needs of its researchers - as well as supporting the education of nearly 100,000 students - constantly challenges the university's information technology (IT) and networking staff.

A long-time user of HP ProCurve equipment, Indiana University recently upgraded all the network switches in its main data center in Bloomington, Indiana, to the ProCurve 5400zl series and 8212zl series switches. As a result, the university has seen its already good network performance increase - while maintaining the reliability it has come to expect from HP ProCurve equipment. With HP ProCurve's excellent value and lifetime warranty program, Indiana University's IT staff feels confident it can keep pace with its researchers' networking needs.

Data center gets an upgrade

"We're currently developing a 10-year plan for upgrading our entire communications infrastructure" said Matt Davy, Chief Network Architect for Indiana University. "We need to specify our technical roadmap so we can allocate funding for the new infrastructure - with funding and budgets being a huge consideration for any university undertaking."

The data center's HP ProCurve 4000 and 4100gl series switches have been upgraded to the HP ProCurve Switch 5400zl series, the company's flagship Intelligent Edge Switch series. "HP ProCurve offers tremendous value, with the right set of features we need at the right price, and ProCurve's lifetime warranty*," said Davy.

Indiana University's network infrastructure is highly centralized, meaning the central IT department manages the network for nearly all the colleges and departments. "We manage the entire network down to the data

jacks, instead of simply dropping fiber to the departments and having the departments manage their own networks," said Davy.

This centralization makes for a huge operation: The Bloomington and Indianapolis campuses together have about 1,700 switches - approximately 80,000 ports - to serve the university's nearly 100,000 students and its more than 18,000 faculty and staff. All of these currently are being upgraded to ProCurve 5400zl series switches.

It also means that security is paramount. "We are evaluating the HP ProCurve ProActive Defense solutions," said Davy, including the ProCurve Network Access Controller (NAC) 800 and ProCurve Identity Driven Manager (IDM), a plug-in to HP ProCurve Manager Plus (PCM+) network management software.

Technology powering research

Indiana University is known for cutting-edge research, including ownership of one of the 50 largest supercomputers in the world. Many of the research labs have instruments and computing resources that must be integrated into the network infrastructure, and a number of academic departments require considerable bandwidth.

"Our researchers are big users of bandwidth," said Davy. "We recently built two very large data storage systems that are capable of extremely high bandwidth. One of these systems was benchmarked at an aggregate of approximately 115Gb/s of write capacity from the IP network to disk. Our researchers need to be able to move large data sets between systems in their buildings and these central storage systems very quickly."

To support this need for speed, the university's IT department runs dedicated fiber into some of the research labs - including astronomy, physics, computer

Customer at a Glance

Indiana University (www.iu.edu), one of the premier research universities in the U.S., serves nearly 100,000 students at eight campuses across the state of Indiana. Indiana University's campuses include more than 150 research institutes, one of the largest university-owned supercomputers in the world, a leading medical center and more than 15 museums and theaters.

science and chemistry - using HP ProCurve Switch 3500yl series stackable switches to provide 10Gb connections back to the datacenter.

Indiana University research that is pushing technology requirements includes:

- The Astronomy department partners on the WIYN telescope One Degree Imager (ODI) that promises images with 1 billion pixels by 2009. They will need to store these images, analyze them and archive them for long-term storage.
- Genomics and molecular biology researchers use and share molecular imaging software; medical researchers collaborate using medical imaging scans of patients involved in clinical research programs.
- The fine arts department generates large graphics files that need to be shared across the network.
- The geology department uses high-bandwidth geographic image systems (GISs).
- Telecommunications researchers and students frequently use digital video applications and employ streaming video in their work.

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Reliability is key

"We're really happy with the reliability of our HP ProCurve equipment," said Davy. "We've found HP ProCurve to be a trusted platform that's rock solid, even as we push the bandwidth and offer new services.

"We can push 10Gb out to individual buildings and gigabit to the desktop using Jumbo Frames, and we can offer voice-over-Internet-Protocol (VoIP) with quality of service (QoS) throughout the university. And we do all these things reliably and at a price point that can't be matched," he said.

Convergence and wireless take center stage

As part of its 10-year plan for upgrading its communications infrastructure, Indiana University is engaging in a large convergence push that includes upgrading all wiring to Category 6 cable, for delivering gigabit to the desktop for every data jack.

The IT department will take advantage of the reliability and advanced convergence-ready capabilities of the 5400zl switches to not only expand VoIP throughout the university's campuses, but also make greater use of video - including IPTV - and unified communications (i.e., voice, video, instant messaging and more integrated into the desktop through Microsoft Office Communications Server).

Wireless capabilities are being expanded beyond classrooms, faculty offices and libraries to cover all student rooms in the residence halls, as well as lounges, restaurants and other campus common facilities. The student residence and academic facilities represent two very different environments for delivering wireless services - but both share the need for network connection throughout the campuses.

"Indiana University's IT department is always trying to understand how to take advantage of new technologies to advance academic goals," said Davy. "At the same time, we're also aware of the dramatic changes in how students use technology, and we look for ways to make their residential experience richer, as well." Davy estimates that 98 percent of the university's students have cell phones and about 70 percent have

What makes it work:

Hardware

- HP ProCurve Switch 5400zl series
- HP ProCurve Switch 3500yl series
- HP ProCurve Switch 8212zl
- HP ProCurve Switch 4100gl series
- HP ProCurve Network Access Controller 800

Software, Services & Support

- Lifetime warranty with next-day advance replacement*
- Software updates, telephone and email technical support
- Comprehensive network design and configuration services

* For as long as you own the product, with next-business-day advance replacement (available in most countries). The following hardware products and their related series modules have a one-year hardware warranty with extensions available: ProCurve Routing Switch 9300m series, ProCurve Switch 8100fl series, and ProCurve Network Access Controller 800. The following hardware mobility products have a one-year hardware warranty with extensions available: HP ProCurve M111 Client Bridge, HP ProCurve MSM3xx-R Access Points, HP ProCurve MSM7xx Mobility and Access Controllers, HP ProCurve RF Manager IDS/IPS Systems, HP ProCurve MSM Power Supplies, and HP ProCurve 1 Port Power Injector. Standalone software, upgrades, or licenses may have a different warranty duration. For details, refer to the ProCurve Software License, Warranty, and Support booklet at <http://www.procurve.com/warranty>.

MP3 players, and that more than 3,000 iPhone devices alone are in use.

"The iPhone is just the tip of the iceberg," said Davy. "Students and researchers alike use cell phones, MP3 players, handheld gaming devices and more - and they all want to be on the university's WiFi network."

In the spring of 2008, Indiana University completed a competitive bid for a new WiFi network and made the award to HP ProCurve. In just 3 months Indiana University replaced approximately 2,000 older access points with HP ProCurve Radio Port 210s, which work in conjunction with the HP ProCurve 5400zl switches and HP ProCurve Wireless Edge Services zl Modules (WESMs zl). "We're also hoping to take advantage of HP ProCurve's integrated wired and wireless management through PCM+," said Davy.

Putting it all together in Kokomo

The university's Kokomo campus - one of the university's smallest - is getting a complete overhaul from an IT perspective. It will serve as a preview of what the larger campuses will be moving toward in terms of their IT and communications technologies.

"Kokomo is getting a total upgrade: 5400zl edge switches, new HP ProCurve Switch 8212zl core switches, PCM+, IDM and other ProActive Defense solutions, and an update to the wireless network," said Davy. "Once we've deployed advanced features such as IDM and 802.1x at a smaller campus, we'll start implementing these on the other seven campuses."

Business Benefits

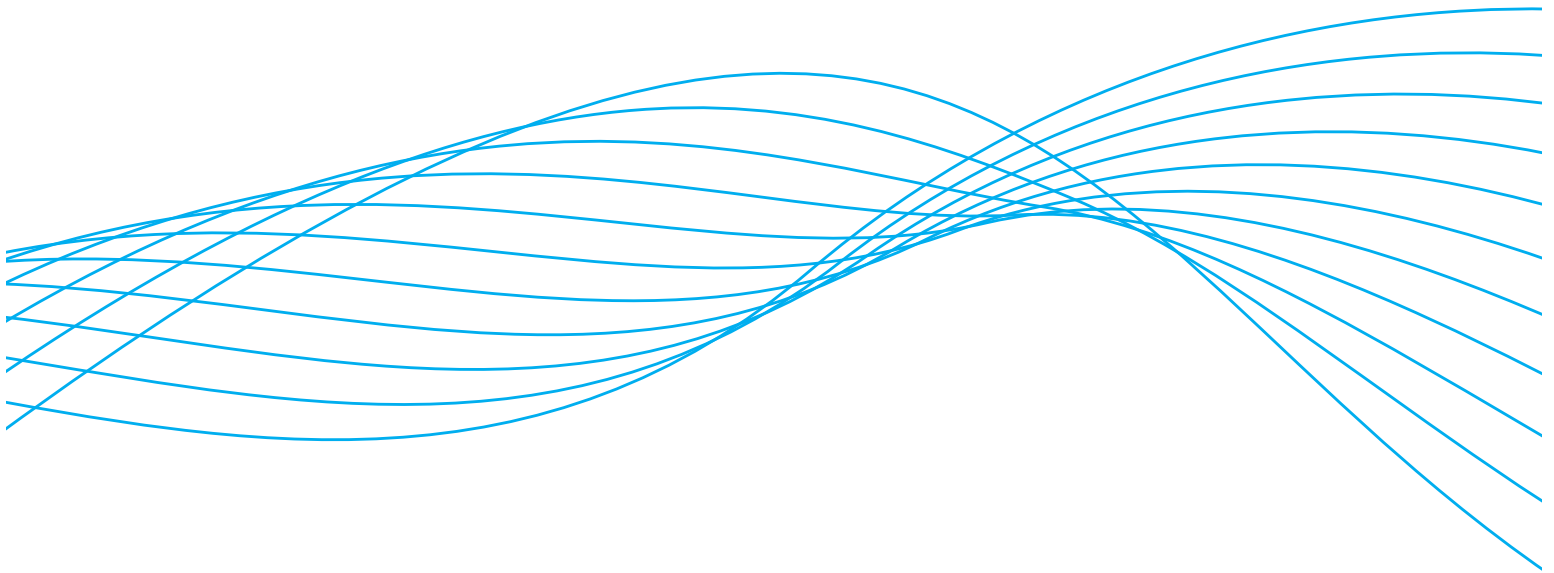
- With the bandwidth, reliability, security and other high-performance features of the ProCurve Switch 5400zl series, Indiana University's IT department can fulfill its missions to support the work of the university's diverse and demanding researchers - as well as support students' academic goals while enhancing their residential experience.
- HP ProCurve's excellent value and warranty* mean that Indiana University can afford to maintain its technological edge while staying within tight academic budgets.
- The flexible, powerful and convergence-ready ProCurve network enables Indiana University to deliver VoIP, video and wireless capabilities today, with the confidence that the network will embrace future technologies as they arise.

About HP ProCurve

HP ProCurve is the Network of Choice for best-in-class solutions, products and services for wired and wireless networks. HP ProCurve's Adaptive Networks vision enables customers to implement an open, standards-based network infrastructure that adapts to the changing needs of users, applications and organizations.

HP ProCurve was positioned in the Leaders quadrant in research and advisory firm Gartner, Inc.'s 2008 Magic Quadrant Report for Global Campus LANs and is No. 2 worldwide in Ethernet switch market revenue and ports according to Dell'Oro Group.

For more information on HP ProCurve, visit www.procurve.com.



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