



## INDIANA UNIVERSITY ENROLLS COMPELLENT SAN FOR IMPROVED EFFICIENCY AND PRODUCTIVITY



Indiana University prides itself on being one of the most wired universities in the United States and is committed to staying at the forefront of IT solutions and service delivery. That commitment extends to the Auxiliary Information Technology (AIT) department, which manages the systems for a wide range of nonacademic functions for the Bloomington campus of the eight-campus

university, including the residence halls, dining services, parking operations, document services and much more.

In the past two years, the department saw a major opportunity to lower the total cost of ownership of its equipment and improve service offerings by virtualizing its server and storage infrastructure. “We had about 120 physical servers,” says Janssen Jones, associate IT director of AIT Infrastructure. “Each one had direct-attached storage and was usually running a single application.”

With direct-attached storage, the department typically spent \$10,000 to \$20,000 on production and backup hardware to launch a new application—and it could easily take over a month to spec, purchase, install and provision the new servers. Unlike many departments at the university, the Auxiliary Services and Programs department is not funded by grants. “We support our own operations, so containing costs is as important as delivering high-quality services,” says Jones. “We needed to reassess our architecture to improve efficiency and productivity.”

After considering various alternatives, Jones and his team moved away from the direct-attached environment by deploying a 30 TB Compellent® Storage Center™ storage area network (SAN).

### END-TO-END VIRTUALIZATION SUPPORTS SMALLER FOOTPRINT AND IMPROVED PERFORMANCE

The virtualized storage offered by the Compellent SAN complements AIT’s Microsoft® Windows Server® 2008 Hyper-V™ virtual servers, reducing power consumption and consolidating the department’s computing environment. Compellent aggregates physical drives into a single pool of virtual storage to quickly and easily support any major virtual server platform with simplified management and no wasted capacity.



“We’re doing a lot more than we ever could have before—and we’re doing it much faster.”

JANSSEN JONES  
Associate IT Director  
Auxiliary Information Technology Infrastructure  
Indiana University

### RESULTS REPORTED BY INDIANA UNIVERSITY

- » Storage and server virtualization reduces five server racks to only three
- » High-performance SAN and servers improve application performance by as much as three times
- » Automated Tiered Storage migrates 80 percent of data to high-capacity storage
- » Thin Provisioning shortens server deployment to less than 10 minutes
- » Compellent’s ease of use dramatically improves IT productivity

### OPERATING SYSTEM

- » Windows 2008 Datacenter Edition with Hyper-V and Failover Clustering

### KEY APPLICATIONS

- » Microsoft System Center Configuration Manager 2007
- » Microsoft System Center Data Protection Manager 2007
- » Microsoft System Center Operations Manager 2007
- » Microsoft System Center Virtual Machine Manager 2008

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## COMPELLENT COPILOT SERVICES SUPPLEMENT IN-HOUSE IT

For departments like AIT, budgets have to go a long way. Not only does the Compellent SAN make managing storage easier and less time-consuming—Compellent Copilot Services offer integrated professional services from initial implementation to ongoing optimization. With comprehensive training and system monitoring and alerts, it's like having another resource on staff—without increasing headcount. AIT relies on Copilot's proactive SAN monitoring through phone home alerts to identify issues before they become a problem.

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“Knowing that I can pick up the phone and have someone on the other end within a couple minutes is nice. Having that same person proactively call me before I even know about an issue is even better.”

JANSSEN JONES  
Associate IT Director, Auxiliary  
Information Technology Infrastructure  
Indiana University

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AIT is now running 130 virtual machines on just 14 server blades and continues to consolidate older systems. Despite rapid growth, the department has reduced its data center footprint from five server racks to two. Since the department rents space in the university data center, that consolidation represents significant savings.

Along with a smaller footprint, AIT is also reporting improved application performance for its end users. According to Jones, “We were going to start slowly with virtualization, but the benefits were too good to resist. With the SAN, our applications actually run faster when we migrate them into virtual machines, because they have access to more spindles.”

## THIN PROVISIONING AND AUTOMATED TIERED STORAGE INCREASE STORAGE EFFICIENCIES

Compellent's Thin Provisioning allows AIT to allocate any amount of storage capacity, but consumes physical resources only when data is actually written. This can cut up-front disk requirements in half, helping the department continue to support growth and new programs despite a limited budget.

Says Jones, “I used to try to overprovision each server. That meant paying for extra capacity before I needed it, and I'd still end up manually reconfiguring storage within a year. Now I just set up a volume and let the SAN do its thing. The time savings are huge.”

Jones saves additional time using Compellent's Data Progression™ to monitor storage access patterns, which intelligently classifies and migrates blocks of data between high-speed Fibre Channel drives and high-capacity SATA drives. The department currently has about 80 percent of its data residing on the less costly drives, which saves money and optimizes performance—automatically.

## INTUITIVE INTERFACE AND COMMAND UTILITY INCREASE IT PRODUCTIVITY

Jones credits Compellent's ease of use with drastically shortening the amount of time his staff spends managing storage. The Compellent SAN features a single, intuitive interface that spans the entire set of technologies, capabilities and configurations, making Compellent substantially easier to manage than the department's previous SAN. “We purchased a SAN in 2000, but complexity was a real problem,” he explains. “Now my concerns are gone. The tools are easy to use, and I don't have to spend hours architecting the solution and managing data, because those functions are almost entirely automated.”

The Compellent Storage Center Command Set for Windows PowerShell further increases productivity, allowing Jones to automate his most frequent procedures—and spend more of his work week on critical IT issues. “Since its release, I've been a huge proponent of PowerShell. PowerShell cmdlets make scripting extremely intuitive, and because Compellent has released a PowerShell snap-in to manage the SAN, scripts are easy to write and deploy. Now I can set up a Highly Available Virtual Machine in less than 10 minutes. Compare that to the weeks it takes to provision a new physical server, and you can see why we'd never do it any other way.”

The time and cost savings offered by the Compellent SAN are important advantages for this hard-working IT organization, and Jones sees more value ahead. “We have a lot of room for growth. I'm guessing we won't have to buy new servers or storage capacity for at least a year, maybe two. Most important, we're doing a lot more than we ever could have before—and we're doing it much faster. This has been a great investment for us.”