Customer Case Study

Healthcare Provider Uses UCS Platform to Deliver High-Touch Care

Executive Summary

- **Customer Name:** Adena Health System
- **Industry:** Healthcare
- **Location:** Chillicothe, Ohio
- **Number of Employees:** 2500

Business Challenge

- Deliver fast, secure access to patient information and services at all times
- Support staff with the state-of-the-art medical applications
- Improve reliability and capacity of telephone service

Network Solution

- Migrated data center to Cisco UCS for a powerful, converged network, data center, and communications infrastructure

Business Results

- Improved overall system performance by six to seven times
- Eliminated 95 percent of server footprint, saving US$200,000 annually in power and cooling alone
- Enabled telemedicine initiative, which has cut patient transfers by as much as 50 percent, yielding cost savings and better patient experience

Cisco UCS provides Adena Health System with immediate, always-on access to information and services.

Business Challenge

To deliver world-class patient care, medical centers need reliable, high-performance IT solutions that enable staff to address patients' needs rapidly and securely. This need is especially true for busy healthcare providers such as Adena Health System, now ranked among the best regional hospitals in the nation. The 250-bed facility is the core of a system that encompasses 17 regional sites serving more than 440,000 people in south-central Ohio. More than 2500 employees work on the campus, as do some 200 students and interns.

Adena Health System is deeply committed to delivering excellent care, but that takes more than staff dedication. It also requires the latest software applications, running on a reliable, high-performance infrastructure of networks and servers. So when chronic network issues flared up into a four-hour outage one day in 2006, hospital administrators moved swiftly, making a significant upgrade to its infrastructure a priority.

"The medical center's goals are simple: to offer the best care at a reasonable price," says Brian Young, infrastructure manager at Adena Health System. "From a data center perspective, we needed to upgrade systems cost effectively to support the latest medical applications and to handle ever-increasing network loads with complete reliability."

"With the converged Cisco solution, we can now centralize monitoring and management for all of our resources and provide better support and services to users without increasing IT staff."

– **Brian C. Young**
Infrastructure Manager
Adena Health System

Adena Health System's IT moved immediately to implement Cisco Catalyst® 6500 Series switches with a 10 GB infrastructure and 1 GB connections to the desktop. After this complete upgrade, the hospital at last had a reliable network, wireless systems, and the scope to upgrade systems to handle expansion and digital record-keeping.

This upgrade solved the most pressing problem of reliable network access, but not the challenge of the aging data center fleet consisting of HP servers. These systems needed to be replaced to support the latest medical applications. Plus, Adena's 25-year-old private branch exchange (PBX) phone infrastructure badly needed an upgrade, because some facilities experienced periods of dropping up to 30 percent of incoming calls.

Looking toward the most advanced of data center technology, Adena Health System IT first considered the Cisco Unified Computing Services™ (UCS®) framework, and appreciated the logic of turning to the same provider for both server and network infrastructure. Inspired by the performance of the Cisco® networks that the organization had previously implemented, Adena Health System quickly engaged Cisco to set up a pilot and evaluate the potential return on investment of a full Cisco data center infrastructure.

The pilot produced excellent results with the critical business and patient management applications that Adena wanted to implement. It also achieved a 95 percent reduction in server footprint, leading to a $200,000 per year savings in data center power and cooling costs. With cost savings, hard evidence of always-on reliability, faster performance, and outstanding connectivity, the Adena Health System's IT team moved forward with migrating Adena's entire data center fleet from HP to Cisco UCS and its phone system from an NEC PBX to Cisco-based voice over IP (VoIP).

Network Solution

Today, the relatively small staff of five within Adena Health System's Infrastructure team manages more than 300 virtual and physical servers within the Cisco B200 M2 and B200 M3 blade server environment. They also manage a Cisco VoIP infrastructure and all networking for the health center with Cisco MDS 9148 Multilayer Fabric Switches and Cisco Nexus® 7000 Series switches in the core, running with the Cisco 6500 Series Switches. At the same time, the team transitioned its storage to a NetApp SAN environment.

The new server infrastructure uses a Citrix Xen-based framework to support the best healthcare applications available, including MEDITECH healthcare information systems, eClinicalWorks ambulatory clinical information systems, LUMEDX cardiovascular information and imaging systems, and PACS for radiology. Production webservers and database applications from Oracle and Microsoft all run in the new environment. In all, the UCS framework currently supports approximately 130 applications, records critical patient data, and stores real-time video for security systems.

The VoIP infrastructure includes Cisco Jabber™ so that users can communicate campuswide with instant messaging. It also features three Cisco TelePresence® rooms and five Tandberg communications carts.

Adena Health System's IT also relies on Cisco Unified Communications Manager to create service profiles for the UCS blades and provide consistency within the environment. This single-pane-of-glass management solution enables them to manage the company's multiple hardware systems through a single interface.

Business Results

Because they are working in conditions where seconds can make a significant difference in outcomes for patients, medical professionals demand high-performance applications. With the new Cisco infrastructure, they get consistent, high-quality access to the information, services, and capabilities that they need.

"We've experienced significantly less downtime and a six to seven times performance improvement with the Cisco UCS infrastructure," says Young. "In my experience, Cisco always delivers products that work as advertised."

Although it is hard to separate all the individual factors that contribute to the six-to-seven fold performance improvement, I/O operations on MDS switches have dropped from 30,000 ms to 3 ms versus the organization's previous fiber infrastructure. This boost in performance has translated to reduced wait times for staff to access applications and increased application responsiveness, creating an environment that boosts staff productivity and delivers higher-value services to patients.

The VoIP system even enables medical staff to do something new: coordinate with each other and see distant patients using videoconferencing. Telemedicine has enabled Adena to cut patient transfers significantly; for example, the children's hospital link has been able to cut transfers by 50 percent. "This delivers value to Adena, because it saves on the expense of transfers, and transfers aren't always reimbursed," says Young. "But it delivers even more value to patients and families, by reducing the chance that they'll need to make a disruptive move."

Consolidated footprint, reduced costs

Powerful UCS servers allow the team to leverage lower-cost memory modules in different combinations, and deploy more hosts per blade. The result is an increased capacity for growth, more sustainably, than was previously possible. Cisco Unified Data Center solutions also simplify and reduce cabling complexity, which frees up technicians' time and adds to the healthcare provider's cost savings

Cisco Unified Data Center Solutions, designed for virtualization, have significantly reduced Adena Health System's reliance on deploying new hardware to scale its business, while reducing its overall data center footprint. "We've already virtualized 75 percent of our systems, and we'll soon have eliminated 95 percent of our physical server footprint," Young says. "We had four rows of racking in the data center. That's going away."

Cisco UCS Manager has been key to the success of the migration as well as the low maintenance and cost of the new environment. It provides transparency that helps Adena Health System's IT team bring new components up quickly and consistently in the virtualized environment and then effectively monitors them.

"Since deploying the new system, I've received just three calls for the whole UCS framework, and two of those were user error," says Young. "With the previous system, we were constantly being called on to solve physical errors. We would have had to double our staffing to take care of the SAN, phones, servers, and security. With the converged Cisco solution, we can now centralize monitoring and management for all of our resources and provide better support and services to users without increasing IT staff."

Product List

Cisco Unified Computing System servers

- Cisco B200 M2 Blade Servers
- Cisco B200 M3 Blade Servers

Routing and Switching

- Cisco MDS 9148 Multilayer Fabric Switches
- Cisco Nexus 7000 Series switches
- Cisco Catalyst 6500 Series switches

Network Management

- Cisco Unified Computing System Manager

Security and VPN

- Cisco ASA Adaptive Security Appliance

Communications

- Cisco Jabber 9.0 for Desktop
- Cisco TelePresence Systems
- Cisco Unified IP Phones

Storage

- NetApp FAS3270 Storage Systems

The move to VoIP is also yielding maintenance savings. Previously, the organization had to keep a full-time NEC specialist on site, but now Adena can save the $168,000 in annual salary and use its own PC technicians to move phones by simply plugging into Internet jacks. Offering Adena Health System's IT complete visibility into the phone system, UCS has also made it possible for Adena to consider bringing its call center back in-house, which would generate more jobs for local people and build tighter connections with the community.

Next Steps

In the future, Adena Health System plans to extend the core Cisco infrastructure to Adena's disaster recovery facility for even greater reliability. The IT team is also working on bringing video to more endpoints, such as desktops and mobile devices, to further support the increased use of telemedicine.

"With the Cisco UCS foundation, we're providing cost-effective, high-performance computing that supports Adena in its mission to deliver high-quality, high-value patient care," says Young. "And with the power and flexibility of UCS, we're more confident than ever that we'll be able to build on what we've got to help the hospital benefit from new business and technical initiatives."

For More Information

To find out more about Cisco Unified Data Center solutions at www.cisco.com/go/dc and Cisco Unified Computing Systems at www.cisco.com/go/ucs.

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