

Hospital Builds Next-Generation Data Center



Executive Summary

- **Customer Name:** University Health System
- **Industry:** Healthcare
- **Location:** 23 locations in San Antonio, Texas
- **Number of Employees:** 5000+

Challenge

- Support medical staff and patients through more rapid, secure storage and retrieval of valuable medical records
- Improve data center flexibility to support growth and expansion

Solution

- Created solid foundation for next-generation data center with Cisco Nexus Switches and UCS

Results

- Improved data center performance for faster retrieval and storage of medical records
- Used flexible infrastructure to help enable gradual, cost-effective deployment of advanced servers
- Consolidated infrastructure for lower power, cooling, and provisioning costs

University Health System builds next-generation data center to support growth with Cisco Nexus Switches and UCS.

Challenge

From processing power for testing and analysis to secure storage for detailed electronic medical records, medical organizations need data centers and networks that are powerful, secure, and reliable. University Health System (UHS) is a nationally recognized academic medical center in San Antonio, Texas owned by the residents of Bexar County. University Hospital, the primary medical institution for UHS, currently operates 498 beds and is one of 15 level 1 trauma centers in Texas. Besides the hospital, the system operates 13 neighborhood clinics, 5 urgent care clinics, and 4 outpatient renal dialysis centers.

With hundreds of thousands of patient visits every year, UHS tracks massive amounts of data. In response, UHS continually seeks to optimize network performance, and today has become one of the most advanced health systems in the United States for managing electronic health records. In addition to written information, patient health records can include digital images, such as x-rays, CT scans, and lab results. The electronic records give healthcare providers a fuller view of a patient's health, which cuts costs, reduces errors, increases efficiency, and ultimately improves patient care.

With its previous data center infrastructure, UHS experienced power and space limitations, which inhibited growth and made it difficult to accommodate additional data and new patients. UHS needed a solution that could support expansion and growth, but at the same time, keep costs low to fit tight budgets.





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— Ari Friedman
IS Project Manager
UHS

Solution

After evaluating data center technologies, UHS chose to build its next-generation data center on Cisco® data center solutions. Cisco collaborated with UHS’ staff and INX, a Cisco gold partner, to deliver the solution for the new UHS data center.

Because cost was an important factor in the decision, UHS closely examined strategies to reuse existing legacy servers and consolidate equipment. For UHS, the combination of Cisco Nexus® Switches and Cisco Unified Computing System™ (UCS®) delivered exceptional flexibility and the best performance for the price.

“When we were designing our data center infrastructure, we considered choosing a top-of-rack solution, such as Cisco Nexus switches, as compared to running structured cabling from server enclosures to core switches. We found that purchasing Cisco data center solutions was far more cost effective compared to home-run cabling; plus Cisco gives us easier installation and all of the features we need, including outstanding flexibility and scalability,” says Ari Friedman, IS project manager at UHS.

Each data center also includes a pair of Cisco Nexus 7000 switches for optimal scalability and reliability, while Cisco UCS blade servers have been implemented for new applications. Cisco UCS offers faster connection speeds over FCoE (Fibre Channel over Ethernet) and excellent performance for the size, which reduces power, space, and cooling compared to legacy servers.

Although the new servers can use FCoE, legacy servers were limited to traditional Ethernet connections, and SAN infrastructure required fibre channel. Unlike the previous data center model that would have required a complex network of multiple, expensive switches, UHS can consolidate switches with the exceptionally flexible Cisco Nexus 5596 switch. This switch has unified ports, meaning that each port can support traditional Ethernet connections, native fibre channel connections, or FCoE.

Together with Cisco Nexus 2248 fabric extenders, the Cisco Nexus 5596 switch connects to legacy servers for 1 gig connectivity over Ethernet, but at the same time, it can also connect to new servers over 10 gig FCoE for much faster processing within the UHS data center. By using the Nexus 5596, UHS can consolidate its data centers with only one switch to receive traffic from FCoE servers, send storage traffic to its SAN infrastructure, and send IP traffic to the data center core.

Results

With the new data center including Cisco Nexus Switches and Cisco UCS data center solutions, UHS achieves better performance, with increased scalability for the future. In a medical emergency, every second counts. Unlike legacy servers that run on 1 gigabit connections, Cisco UCS runs on 10 gigabit FCoE connections for much faster response times. This capability helps ensure that medical staff can get critical patient information and start treatment as fast as possible.

Because Cisco Nexus 5596 switches support multiple types of connections, UHS can continue using legacy servers while gradually upgrading to Cisco UCS servers as its budget allows. As a result, UHS can take advantage of powerful new servers today, without worrying about costly switch upgrades in the future. This benefit means that UHS enjoys reduced TCO for the Cisco solutions now and over time.

Product List

Routing and Switching

- Cisco Nexus 7000 switches
- Cisco Nexus 5000 switches
- Cisco Nexus 2000 fabric extenders
- Cisco ASR 1000

Servers

- Cisco UCS Blade Servers

Security and VPN

- Cisco ASA Firewalls

Cisco Nexus and UCS data center solutions also provide a more efficient infrastructure. The performance and capacity of multiple legacy servers can be consolidated onto fewer, more powerful blade servers, which cuts down on power, space, and cooling costs. Servers using FCoE also require fewer cables and connections, which lowers provisioning costs and reduces the number of management points. This efficiency not only brings greater flexibility to the UHS data center, but it also makes the data center easier to manage, enabling the hospital's IT team to work more efficiently and even troubleshoot problems before they happen.

The advantages of the enhanced UHS data center built on Cisco Nexus and Cisco UCS are transforming opportunities for streamlined administration and enhanced patient services. Already, UHS has seen tremendous performance gains, reduced IT costs, and streamlined, more secure access to critical patient data. In this way, Cisco data center solutions are helping UHS achieve its mission of promoting the good health of the community by providing the highest quality of care possible.

For More Information

To find out more about Cisco Data Center Business Architectures, visit:

www.cisco.com/go/dc.

To find out more about Cisco Unified Data Center, visit: www.cisco.com/go/nexus.



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