By Virtualizing, Hospital Downsizes Data Center, Cuts Costs

Executive Summary

Customer Name: Denver Health Medical Center

Industry: Healthcare

Location: Denver

Number of Employees: 5200

Challenge:
- Streamline troubleshooting of complex data center problems
- Downsize data center while optimizing utilization and performance
- Provide universal access to data center, application, and network data from centralized location

Solution:
- Cisco Unified Computing System enables virtualization and unified management
- Cisco architecture integrates with VMware for cohesive management
- Cisco UCS B-Series Blade Servers enhance performance

Results:
- Achieved clear, comprehensive view of data center operations
- Experienced dramatic improvements in performance, leading to better utilization of resources
- Allowed IT team to troubleshoot network issues faster and more effectively

Denver Health deploys Cisco solutions to virtualize data centers, streamline troubleshooting, boost performance, and reduce costs.

Challenge

Founded in 1860, the Denver Health and Hospital Authority is the Rocky Mountain Region's Level l academic trauma center and the safety-net hospital for the Denver area. The Denver Health system, which integrates acute and emergency care with public and community health, includes the Rocky Mountain Regional Trauma Center, Denver's 911 emergency medical response system, Denver Health Paramedic Division, eight family health centers, 13 school-based health centers, the Rocky Mountain Poison and Drug Center, NurseLine, Denver CARES, Denver Public Health, the Denver Health Foundation, and the Rocky Mountain Center for Medical Response to Terrorism, Mass Casualties, and Epidemics.

To support this massive distributed organization, Denver Health operates two data centers. After receiving a mandate to cut costs, David Boone, Denver Health's operations and server manager, decided to virtualize the second data center using VMware. However, after virtualizing 75 percent of the servers, he realized the existing data center architecture could not adequately support a virtualized environment.

"We had 54 hosts managing almost 700 guests, but many of these were individual hosts," says Boone. "Whenever a vendor released a patch, we had to implement it to every server in a cluster. It was a logistical nightmare."

Boone was also disappointed that cost savings were minimal, and performance was still an issue. "I'd hoped for more," he says. "More consolidation, more power and cooling savings, more space freed up, but it didn't materialize."

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>
> – David Boone
>   Operations and Server Manager
>   Denver Health

To make matters worse, even though most systems were virtualized, Boone still had difficulty getting a comprehensive view of the entire data center environment. "We need to rapidly identify points of failure, judge the impact on operations, and quickly implement solutions whenever problems come up," he says. "Simply getting sufficient information to do rudimentary troubleshooting was extraordinarily difficult."

To address this myriad of issues, Boone began to look for a flexible, resilient, truly enterprise-level data center infrastructure solution.

Solution

When Boone began considering his options, one key factor was top of mind: ease of integration. "I wanted to make sure that the solution we selected would fit nicely with what we currently have in our environment. Cisco UCS offers seamless integration with VMware," he says. "We also had to integrate the Microsoft System Center into our network, and had already started down the path of developing a 10-gigabit private network to meet our storage requirements.

As part of its new infrastructure, Denver Health installed Cisco Nexus® 2000, 5000, and 7500 distributed switches, and outfitted each data center with eight Cisco® UCS B230 M1 Blade Servers. More than 800 applications run across both data centers, including SharePoint 2010 for business intelligence, medical records vendor applications such as OpenLink, and numerous instances of Microsoft SQL Server that support 85 SQL databases holding patient care information, almost all of which have been virtualized.

Before the implementation began, Boone dreaded the transition to the new architecture. Nevertheless, as he describes, there was no need to worry; the UCS migration was painless. "The Cisco Services team came in, got up to speed on our environment immediately, and installed and configured the units for us," says Boone. "We were able to start moving our VMware guests right away, with only minimal downtime. Cisco's execution was practically flawless."

Results

After deploying Cisco data center solutions, the Denver Health IT team now has a clear view of its data center environment. "With Cisco UCS, I can get all system, application, and network data from a single place," Boone says. "This lets us identify and track any issues that arise, perform root-cause analyses, and take full advantage of Microsoft Service Manager to roll out solutions."

Boone and his team have also seen dramatic improvements in performance. "We're seeing much better performance from the Cisco blades. We're able to achieve higher virtual machine density, and we can utilize both memory and CPU resources more effectively. The Cisco platform has helped us realize gains across the board."

According to Boone, the greatest benefit for Denver Health, however, is the fact that IT operations are "no longer in a crisis situation." He continues, "We have all the data in one place. We can be repeatable, consistent, and precise about diagnosis, tracking, and fixing any problems. And that is huge."

Next Steps

Looking forward, Boone and his team will continue optimize its technology to support the success of the hospital. "With help from Cisco, IT is enabling doctors to be as efficient as they possibly can," says Boone. "We're helping improve patient care by the work we're doing right here in the data center. We truly feel ownership in the future success of Denver Health, and that's the way it should be."

For More Information

To find out more about Cisco Unified Computing, visit: www.cisco.com/go/ucs.

To find out more about Cisco Nexus Switches, visit: www.cisco.com/go/nexus.

To find out more about Cisco Services, visit: www.cisco.com/go/services.