Insurance Company Deploys UCS and Gains Speed, Flexibility, and Savings

Hannover Transforms Data Center Management

EXECUTIVE SUMMARY
HANNOVER LIFE RE AMERICA
• Financial Services
• Orlando, Florida, United States
• 340 Employees
CHALLENGE
• Aging server infrastructure resulted in increasing support costs
• Lack of flexibility led to over-provisioning server infrastructure to help ensure sufficient capacity
• Provisioning servers was time consuming
SOLUTION
• Cisco Unified Computing System B-440 M2 Blade Servers with Intel® Xeon® E7 processor 5600 series; B-230 with Intel Xeon processor 6500 series; B-200 with Intel Xeon 5600 processors; C-series with Intel Xeon 5600 processors
• Cisco Nexus 7000 and 5000 Series Switches
• Cisco Data Center Network Manager
RESULTS
• Reduced equipment footprint from three racks to one-third of one rack, gaining power and cooling savings and eliminating cables
• Reduced server provisioning time to minutes, instead of days, and eliminated significant capital cost
• Accelerated database run times to increase actuaries' responsiveness to customers

Challenge

For more than 30 years, Hannover Life Re America has been designing custom solutions for clients in the life and health reinsurance market. A subsidiary of Hannover Re, the third largest reinsurer in the world, Hannover Life Re America is headquartered in Orlando, Florida with its data center in another state. The data center housed 500 servers, which were approximately 20 percent virtualized and 80 percent physical servers.

Many of the servers were approaching the end of their lifecycles, and maintenance costs had been steadily increasing. According to Rajan Patel, senior network engineer for Hannover Life Re, annual support costs ranged from $350 to $400 per server.

In addition to running the usual enterprise applications, Hannover's actuaries run a high volume of Structured Query Language (SQL)-based risk models and complex calculations for identifying attractive policies from direct insurance companies. A model can run from 48 to 96 hours; if an actuary makes an error or wants to change a variable, the model can be rerun for another 36 to 48 hours. Server workloads vary widely, from running a model for multiple days to sitting idle. However, server capacity must always be available, which required over-provisioning, and this approach was time consuming and costly.

Building a server could take weeks while the hardware was procured, provisioned, configured, application templates developed, and applications installed. Adding servers and cabling to help ensure capacity also resulted in increased capital costs and operating expenses such as electrical costs. The facility in which Hannover's data center is housed began charging the data enter separately from the company's office space, metering electricity use and adding a premium to the bill. With aging servers and increasing workloads, it was time to evaluate a new solution.

> "Cisco UCS allows us to have flexible workloads. When we need more computing power, we can quickly deploy more VMs. When workloads drop, we can power down the servers and reduce power and cooling costs. We are looking forward to much lower costs."
> —Rajan Patel, Senior Network Engineer

Solution

"For us, an important factor in choosing the Cisco Unified Computing System platform was the ability to have an end-to-end, single-vendor solution," says Patel. "In addition, Cisco's support for our core infrastructure over the years has been the best we have ever received. It was very easy to follow Cisco into the server space, where we could rely on the same technical support for our servers as well."

Patel's team began by deploying Cisco Nexus® 7000 and 5000 Series switches. Two Nexus 7000 Series switches are segmented into four Virtual Device Contexts (VDCs) for access, core, data center, and management. VDCs give Patel's team flexibility and simplify operations, enabling them to optimize power consumption, space requirements, device utilization, maintenance operations, and, ulti¬mately, service speed. The data center VDC connects to two Cisco® Nexus 5010 Series switches. Physically, the Nexus 7000 and 5000 Series switches are connected with 10-GB fiber links.

The switches also support a 100-MB connection to Orlando headquarters. With existing Cisco Wide Area Application Services appliances and Cisco Wide Area Application Services software, Patel's team can provide high-performance access to applications, storage, and video content, across the wide area network.

As the team transitioned from its existing servers to Cisco Unified Computing System™ Blade Chassis, the servers were connected to the Nexus switches with 40-GB fiber connections. Fibre Channel uplinks connect the Cisco Unified Computing System pods to Hannover's storage area network (SAN). Cisco UCS 6120XP 20-Port Fabric Interconnects are deployed in a redundant pair, providing uniform access to the network and storage.

Hannover deployed Cisco Unified Computing System B-250 M2 blade servers, using the Intel Xeon processor 5600 series. Intel Hyper-Threading Technology delivers superior throughput and responsiveness for multithreaded applications, such as Hannover's modeling application. Intelligent performance of the Intel Xeon processor 5600 series enables Patel's team to quickly adapt to support changing loads.

Hannover moved three full racks, or 77 physical servers, to 77 virtual machines (VMs) running in one Cisco UCS pod on one-third of a rack. All of these VMs are running on a single Cisco UCS B250 M2 blade.

PRODUCT LIST

Data Center Solutions
- Cisco Unified Computing System B-440 M2 Blade Servers with Intel Xeon E7 processor
- Cisco Unified Computing System B-230 Blade Servers with Intel Xeon 6500 and E7 processors
- Cisco Unified Computing System B-200 Blade Servers with Intel Xeon 5600 processors
- Cisco Unified Computing System C-series rack servers with Intel Xeon 5600 processors
- Cisco Unified Computing System 6120XP 20-Port Fabric Interconnect

Routing and Switching
- Cisco Nexus 7000 Series Switches
- Cisco Nexus 5000 Series Switches
- Cisco Catalyst® 3750 Series Switches
- Cisco Wide Area Application Services 674

Security and VPN
- Cisco ASA 5585 Series Adaptive Security Appliances
- IronPort Security Appliance
- Cisco Secure Access Control Server

Network Management
- Cisco Data Center Network Manager

"Early on, we performed a stress test on a single UCS 250 M2 blade with 192 gigs of memory," says Patel. "We moved 80 physical servers to the blade server. The blade server ran out of memory, but the CPU was running at about 10 or 12 percent. It was impressive." During the test, the high availability feature gracefully shut down the VMs, moved them to another VMware ESXi host, and distributed them in less than five minutes.

Today, Hannover is running dozens of applications on the Cisco UCS platform, including Active Batch, Business Objects, BlackBerry servers, Cisco applications, EMC applications, domain controllers, financial applications, FTP servers, namespace servers, Citrix servers, SQL servers, replication servers, SQL monitoring tools, its Hyperion application, and its internal reinsurance application.

Results

Hannover has seen tremendous simplification of its data center management with the new infrastructure. Both Cisco blade servers and rack servers are managed using Cisco Data Center Network Manager. A server administrator can simply copy a service template, click once, and deploy and attach the template to a server. In the past, dozens of steps and ghosting a server would have been required.

"The Cisco Data Center Network Manager visually shows everything," says Patel. "Now, a server engineer who has never built a VLAN in his life can go to the LAN tab and build an additional VLAN, add it to Cisco UCS, and make it available to the server under the server profile. UCS has removed all of the complications of a traditional server." Patel says that the UCS boot from SAN feature is just as easy with the Cisco UCS graphical user interface.

Simplification has reduced learning curves for the storage and server teams. In just two or three hours, individuals can learn how to perform most tasks. Simplicity has also enabled the teams to cross-train, so that everyone can perform server and storage tasks, increasing the team's resilience.

Upgrades to the Cisco Nexus 7000 and 5000 Series switches have been fast, painless, and convenient, using the Cisco In-Service Software Upgrade (ISSU) capability within the Cisco NX-OS software. An ISSU-based upgrade is a systemwide upgrade that applies the same image and versions across the entire system, including all configured VDCs.

"I have upgraded both systems during business hours with no impact to traffic," says Patel. "Both the Cisco Nexus 7000 and 5000 switches have performed flawlessly for us."

Database administrators have achieved large reductions in runtime with the Cisco UCS platform and virtualization. Faster processing enables actuaries to respond to their customers or provide quotes more quickly, therefore improving customer service. The outstanding performance results are leading Hannover to virtualize data center operations as much as possible.

"Cisco UCS allows us to have flexible workloads," says Patel. "When we need more computing power, we can quickly deploy more VMs. When workloads drop, we can power down the servers and reduce power and cooling costs. We are looking forward to much lower costs."

The Cisco UCS platform delivers savings in other areas, too. Licensing costs are lower, because Hannover can run as many VMs as needed on a single VMware ESXi host and simply license the host. The physical size dropped from three racks to one-third of a rack, with the pod running at less than 25 percent capacity. Cabling was also greatly reduced.

Moving to a new platform significantly reduced support costs per server. With the ability to add equipment to its Cisco SMARTnet® agreement, Hannover gains 24-hour onsite support for the same or lower cost per server as its old equipment. And with one server blade instead of 80 physical servers to support, retiring old hardware delivered tremendous savings.

Hannover Re, Home Office, Germany

Next Steps

Patel has many plans for continuing to expand the data center. The team plans to build a private cloud using Cisco Nexus Series switches and Cisco ASA 5585 Series Adaptive Security Appliances. He also expects to expand connectivity to 80 GB and converge the LAN and SAN onto one Fibre Channel over Ethernet network.

For More Information

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

To learn more about Hannover Life Re America, visit www.hlramerica.com.

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