Healthcare Benefits Administrator Moves Business to the Cloud

Customer Case Study

CareCore National used scalable, integrated Vblock architecture as the fountain for Health Services Exchange

Summary

Customer Name: CareCore National, LLC
Industry: Healthcare Insurance
Location: Bluffton, South Carolina
Number of Employees: 1200

Challenge:
- Help to lower healthcare costs and improve quality of care
- Analyze very large data sets to advance evidence-based medicine
- Introduce Health Services Exchange (HSX) cloud service

Solution:
- Vblock Infrastructure Package, including Cisco Unified Computing System, Cisco Nexus switches, EMC Symmetrix storage, and VMware vSphere
- Cisco Data Center Planning, Design, and Implementation Services

Results:
- Reduced time to launch new lines of business from six months to two weeks
- Increased time software engineers can devote to development from 50 to 80 percent
- Built foundation for multitenant HSX cloud service

Challenge

CareCore National is a specialty benefit-management company that pioneered evidence-based medicine for treatments such as outpatient diagnostic and cardiac imaging, cardiac implantable devices, oncology drugs, therapeutic agents, and radiation therapy, as well as sleep, pain, and lab services. The company collaborates with healthcare providers and insurance firms to authorize an average of 45,000 medical procedures daily. With each interaction, CareCore gathers more information for decision-support systems that correlate symptoms, treatment pathways, and outcomes such as bed days or comfort levels.

This approach is known as evidence-based medicine, and CareCore views it as an indispensable strategy for the healthcare system to serve a growing population. "Evidence-based medicine is at the core of how we will manage costs and quality in the healthcare system," says Doug Tardio, chief executive officer for CareCore National.

To that end, CareCore collected 5 billion pieces of information in 2010, and its 40-terabyte data set is one of the industry's largest. "We are a healthcare company, but IT is one of our most strategic assets and enablers," says William Moore, executive vice president and chief technology officer of CareCore National. "We need high performance, scalable infrastructure to connect the dots between treatments and outcomes."

The previous data center architecture was straining available space, power, and cooling, and did not give CareCore the flexibility to quickly introduce new services in response to industry changes. "Our IT infrastructure was the limiting factor for business growth, and we wanted it to be an enabler," says Matt Cunningham, senior vice president of IT for CareCore.

Hear more from Matt Cunningham

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William Moore
Executive Vice President and Chief Technology Officer
CareCore National, LLC

The company decided to build a private cloud. By providing shared resources for all applications and self-service provisioning, a cloud platform would enable CareCore to quickly add new services while also reducing management overhead. Later, CareCore envisioned using the private cloud as the foundation of a health services exchange (HSX), where benefits plans, payers, and physicians could share electronic medical records and physician services such as scheduling and transcription.

Before embarking on the journey to the cloud, CareCore sought a trusted advisor to help map the business vision to IT solutions.

Solution

CareCore National found its trusted advisor in Cisco Services. "We were inventing our own future and wanted the thought leadership that Cisco Services could provide," says Moore.

Cisco Services recommended virtualizing 100 percent of the application environment as a first step. To accomplish this, CareCore implemented Vblock Infrastructure Packages, which can support a large number of virtual machines in a compact footprint. "If you think of the data center as carpeting, we wanted wall-to-wall carpeting, not area rugs with gaps between," says Moore. "The end-to-end requirement led us to Vblock."

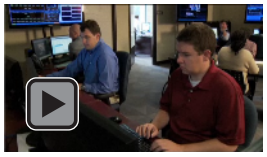
CareCore's Vblock architecture spans two data centers 800 miles apart, one of which is not staffed. The Vblock includes 196 Cisco Unified Computing System B200 M2 Blade Servers hosting 400 virtual machines on VMware vSphere, and 90 terabytes of EMC Symmetrix VMAX storage. All Cisco UCS servers connect to the data network and to storage through a single pair of Cisco UCS 6100 Series Fabric Extenders, eliminating time spent individually cabling each server.

The Cisco Unified Computing System hosts all of the company's applications, including Cisco Unified Communications Manager, Cisco collaboration applications, Microsoft Exchange, databases, application servers, and development environments. Even employee desktops are virtualized. Most employees, including doctors and nurses who staff the contact center, use thin clients with VMware View to log in to their desktops.

Application consolidation and virtualization increased power and cooling efficiency by an estimated 30 percent, lowering energy bills. Virtualization also provides business resiliency. If an outage occurs in the main data center, CareCore can move the virtualized applications over the network to the Vblock infrastructure in the secondary data center. Customers experience no down time.

Virtualized data centers require very high bandwidth, and Cisco Services helped CareCore plan, design, and implement an end-to-end 10 Gigabit Ethernet infrastructure based on Cisco Nexus switches (see Technical Implementation.)

Cisco Services also collaborated with CareCore to develop custom orchestration software. "Cisco Services has been the cornerstone for planning and deployment of all our new technologies," says Cunningham. "We are continually changing our technology, and Cisco Services provides continuity to make sure we don't have isolated solutions deployed in a fragmented manner."



Hear more from Matt Cunningham

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Results

Accelerated Service Introduction, Lower Staff Burden

CareCore continually adds new lines of business, the most recent being musculoskeletal services. The ease of provisioning on Cisco Unified Computing System has accelerated new service introduction from six months to two weeks. Rather than purchasing, deploying, and configuring new servers and then connecting them to the data center network and storage, a server administrator simply clicks to apply a predefined service profile to any available Cisco UCS blade server.

"With our previous data center architecture, a staff of 50 spent approximately 80 percent of their time simply managing the infrastructure," says Moore. "Today, that same staff spends just 20 percent of the time on infrastructure and can devote 80 percent to move the business forward." That innovation, in turn, promises to help physicians care for patients more effectively. "We've gone from a place where the organization was taxed by its IT capability to a place where our IT infrastructure is actually enabling," Cunningham says.

Advancing Evidence-Based Medicine

Today, if experts agree on a new treatment, ten years might pass before that treatment becomes the standard of care, according to Moore. "By creating a platform for evidence-based medicine, we have accelerated the progression from recognition of science to standard of care to just 10 days," he says. "We continually measure the results against the lives we're affecting, providing feedback to industry, academia, researchers, and physician panels."

Hear more from William Moore

Tardio adds, "There's an enormous amount of administrative burden in the healthcare system. Evidence-based medicine—and the infrastructure that makes it possible—is intended to give physicians more time to actually take care of patients."

Lower Overhead for Physicians Needing Authorization

For the clinicians who call CareCore, less time spent on the phone translates to more time for patient care. The new data center architecture makes interactions more efficient because the clinicians who work in CareCore's contact center can now retrieve the data they need to authorize a procedure or treatment in less than one second, compared to 15 seconds on the old infrastructure. In addition, CareCore's contact center agents are now 20 percent more productive, thanks both to faster access and Cisco collaboration tools.

Trusted Advisor as the Business Moves into the Cloud

CareCore credits Cisco Services with helping the company maintain its focus on evidence-based medicine rather than enabling technology, such as spinning up virtual machines more quickly. "Our Cisco Services engineers engage in consultative conversations about how deploying a particular service will create business opportunities. To get where we are today without the Vblock architecture and Cisco Services, we would have stumbled more and spent more."

The company appreciates that Cisco Services focuses not only technology needed for evidence-based medicine, but also human efficiency and effective processes. "That's emblematic of Cisco Services engineers," Moore says. "Rather than focusing exclusively on how to speed up storage access or information acquisition, they understand how to apply technology to effect change in the marketplace. The healthcare business environment is changing, and Cisco Services works with us to continually reevaluate our solutions and to navigate to new opportunities on the horizon."

Next Steps

The Vblock infrastructure is the foundation for the HSX that CareCore is developing in partnership with Cisco and UnitedHealth Group, expected to be launched in 2012. Providers and payers will benefit from easy access to electronic medical records and CareCore's evidence-based medicine databases. Consumers, in turn, are expected to experience improved quality of care because different healthcare organizations can share information.

"To operate the business in a private cloud, we need an integrated rather than fragmented infrastructure," says Moore. "The Vblock is so much more than the sum of its parts. Collaboration between Cisco, VMware, EMC, and Intel provides capabilities you can't get if you try to assemble an architecture piecemeal. Vblock is a cleaner, more elegant, and more capable platform on which to base the business."

Technical Implementation

CareCore's intellectual property includes so-called Big Data: about one-half petabyte of unstructured data, such as medical images, indexed video, and even recordings from contact center interactions with physicians. Cisco MediaSense mines the recordings for germane information. To analyze the unstructured data, CareCore uses Apache Hadoop, an open framework enabling applications to support up to thousands of nodes and petabytes of data. Cisco Nexus Switches help to optimize Hadoop performance by minimizing latency. "To configure individual servers to work with such large data sets, I'd probably need a staff of 50, and 8-12 months," says Moore. "We had the Vblock operational in about half the time and with far fewer people."

Four Cisco Nexus 7010 Switches form the data center network backbone, and Cisco UCS servers access the backbone and EMC storage arrays through Cisco Nexus 5020 Switches. To control access to resources by doctors and nurses, CareCore uses the Cisco Virtual Security Gateway (VSG) for the Cisco Nexus 1000V Switch to create different trust zones.

To optimize application performance for employees and for physicians seeking prior authorization, CareCore delivers services such as firewall, load balancing, and intrusion detection from within the Cisco Unified Computing System instead of on external appliances. "The Cisco Nexus 1000V provides integrated virtual switching, enabling high-speed communications between virtual machines that wouldn't be possible with any other solution," Cunningham says. "Our ability to route the entire workload inside the Cisco Unified Computing System provides economies of scale and disaster recovery capabilities that a physical switch could not deliver."

Products and Services List

Data Center

- Vblock 700
- Cisco Unified Computing System with Cisco UCS B200 M2 Blade Servers
- Cisco Nexus 7010, 5020, and 1000V Switches
- EMC Symmetrix VMAX Storage
- VMware vSphere 4
- VMware View
- Cisco ASA 5500 Adaptive Security Appliance

Services

- Cisco Data Center Planning, Design, and Implementation Service

For More Information

To find out more about Cisco Unified Data Center visit: www.cisco.com/go/datacenter.
To find out more about Cisco Services for Data Center visit: www.cisco.com/go/dcservices.
To find out more about the VCE coalition with Cisco, VMware, and EMC, visit: www.vce.com.

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