Independent Review Organization Builds Private Cloud

ExamWorks, Inc. uses Data Center 3.0 solutions to reduce ongoing costs and increase agility.

EXECUTIVE SUMMARY

ExamWorks, Inc.

- Medical Independent Review
- Atlanta, Georgia
- 450 Employees

Business Impact

- Saved US$200,000 annually in IT resources
- Avoided US$333,000 annually in new desktop computers
- Will support 1000 employees with four-person IT department (expected)

Business Challenge

A national independent review organization, ExamWorks, Inc. matches clients in law firms and insurance companies with medical experts for trial testimony, physical examinations, and peer reviews. Most companies in the industry are small, local organizations. ExamWorks differentiates itself by providing a national network with local offices. The company grows through acquisition, and has expanded from 12 employees in one location to 450 employees in 14 locations in 2009.

To conduct business on a national scale, ExamWorks needed centralized backups, disaster recovery, and the ability to comply with regulations such as the Health Insurance Portability and Accountability Act (HIPAA). “We also needed an efficient way to quickly integrate the IT systems from all of our acquired companies,” says Brian Denton, chief technology officer, ExamWorks.

Solution and Results

ExamWorks built a private cloud to host its main business application and virtual desktops, using the Cisco® Unified Computing System (UCS) B200 M1 and Cisco Nexus 5010 Switch. “We chose the Cisco UCS because it is built for virtualization,” Denton says. “We looked at blade systems as well, but only the Cisco UCS supports the scale and speed we need, and in a small form factor.”

The Cisco UCS has one chassis with three server blades that support all virtualized applications and 450 desktops. ExamWorks expects to add one blade for each additional 150 employees. The Cisco UCS is equipped with a pair of Cisco UCS 6100 Series Interconnects, which connect to a Cisco Nexus 5010 Switch over lossless 10 Gigabit Ethernet. The Cisco UCS also connects directly to storage over two trunked 10 Gigabit Ethernet ports, and uses network-attached storage with a Network File System (NFS) mount.

Most of the company’s data never exits the data center. Employees use thin-client devices to access virtual desktops that reside on the Cisco UCS, and the only information that travels over the network is a screen image. Branch offices only need a Cisco Catalyst® 3750 Switch with Power over Ethernet (to support Cisco Unified IP Phones), a Cisco 2800 Router acting as a voice gateway, and a Cisco Wide Area Application Services (WAAS) appliance. The latter connects to a Cisco WAAS Engine in the data center to accelerate print services and Active Directory authentication for the few employees who do not yet have virtual desktops.

Major benefits of the Cisco Data Center 3.0 solution for ExamWorks include:

- **Very low IT resource requirements:** Just two centralized IT personnel support 450 employees in multiple locations, an accomplishment that Denton attributes to virtualization. For example, the company does not need an IT help desk because employees who have issues with their desktops can just recompose. The ability to manage multiple blade enclosures from a single console saves time, enabling ExamWorks to manage a growing environment with few resources. And confining almost all traffic to the data center eliminates the need to maintain or troubleshoot switches at the network edge. In fact, the company anticipates

needing no more than four IT staff members to support 1000 employees, a ratio of 1 to 250. “At my previous company, we needed 20 IT personnel for 1000 employees,” Denton says. “With Cisco UCS, ExamWorks can support the same number of people with a staff of four. Avoiding the need for 16 full-time positions saves more than $1.1 million annually.”

- **Reduced capital expense:** ExamWorks calculated that the breakeven point for a Cisco UCS compared to a traditional server would be 250 virtualized servers and workstations. A Cisco UCS configured to host 1000 virtual desktops will cost approximately two-thirds less than a traditional server.
- **Lower cabling and desktop costs:** The Cisco UCS uses eight 10-Gigabit Ethernet connections, far fewer than the 35 Gigabit Ethernet connections needed for the old blade servers. “We spend far less time on cable management and need fewer switch ports,” Denton says. What’s more, employees’ thin-client devices do not have to be regularly upgraded, as PCs do. ExamWorks avoided the need to replace one-third of our desktops every year, which will save approximately $333,000 annually when the company is fully staffed.
- **Reduced energy consumption:** As currently configured, ExamWorks’ Cisco UCS can support up to 1000 employees with just two racks, one each for computing and storage access. “The blade server that we replaced required six racks,” says Denton. “I estimate that the smaller footprint of the Cisco UCS reduces our energy consumption by at least 50 percent compared to our old blade server.”
- **Simplified company acquisitions:** When ExamWorks acquires a company, the IT department uses a VMware tool to convert the physical machines to virtual machines, which are then moved onto the Cisco UCS. Moving virtual servers instead of physical servers costs far less and can be accomplished in just one weekend.
- **Simplified information security:** The cloud computing model helps ExamWorks comply with HIPAA requirements for data privacy. The only information that exits the Cisco UCS chassis is desktop screen images. And all access, either from employees or customers, is funneled through a Cisco Adaptive Security Appliance in front of the Cisco UCS. Even network administrators access the data center cloud environment through IPsec tunnels.
- **Increased flexibility:** The company uses Cisco UCS Manager to quickly reallocate compute resources wherever needed. “Best practices are still being developed for private clouds, and the Cisco UCS gives us the flexibility to reallocate compute and network resources to different applications whenever we discover a new way to increase efficiency,” Denton says. Although the Cisco UCS is optimized for virtualization, it can also support physical servers in the same chassis as VMware. ExamWorks takes advantage of this flexibility when an application does not perform adequately as a virtual machine. Using Cisco UCS Manager service profiles, the IT department can quickly provision resources for any server, either virtual or physical.
- **Cost-effective growth:** ExamWorks recently purchased a Cisco UCS B250 blade, which uses Cisco Extended Memory Technology to provide more than twice as much memory (384 GB) as traditional two-socket servers. This will increase the number of virtual machines that a single blade can support, giving ExamWorks the performance and capacity to virtualize all of its applications and desktops as it continues to add employees.

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— Brian Denton, Chief Technology Officer, ExamWorks

For more information about Cisco Data Center 3.0 solutions, visit: http://www.cisco.com/go/dc

For more information about Cisco Unified Computing System, visit: http://www.cisco.com/go/unifiedcomputing

For more information about virtualization, visit: http://www.cisco.com/go/virtualization

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