Real Estate Firm Boosts Business Agility, Service Availability, with Virtualization

Overview

Country or Region: United States
Industry: Professional services—Real Estate

Customer Profile

MLS Property Information Network (MLS PIN) is the largest multiple listing service in New England, serving nearly 30,000 real-estate professionals with a database of over 60,000 active listings.

Business Situation

MLS PIN added six to eight servers each spring when the real estate business surged, leading to server sprawl and high operating costs. The company wanted to reduce servers while also improving availability.

Solution

MLS PIN now runs its critical applications on virtual machines running Windows Server® 2008 Datacenter with Hyper-V™. Microsoft® System Center data center solutions simplify server management.

Benefits

- Business agility improved
- Availability increased
- Infrastructure costs reduced by 60 percent
- Ownerships costs reduced by 30 percent

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MLS Property Information Network, Inc. (MLS PIN) is the most prominent multiple listing service in New England, serving nearly 30,000 real-estate professionals with Web-based property listings. Keeping its Web servers up and running is a business-critical goal. Despite loading up on Web servers every spring to handle peak-season demands, MLS PIN still faced performance issues while stretching the limits of its physical space and power capacity. The company decided to replace its 60 stand-alone servers with 20 clustered servers, each supporting dozens of virtual machines that run Windows Server® 2008 Hyper-V™ technology and the Sanbolic Melio file system. MLS PIN now has a dynamic data center that can quickly pivot to meet the demands of business and deliver reliable availability to customers, while reducing annual hardware-related costs by 60 percent and operational costs by 30 percent.

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Situation

MLS Property Information Network (MLS PIN) is the largest multiple listing service (MLS) in the New England area of the United States, and one of the top ten in the nation. It provides subscriber-based MLS services to nearly 30,000 real-estate professionals throughout New England, and serves 1.2 million consumers with a comprehensive database of nearly 60,000 active listings. The 55-person company prides itself on providing outstanding customer service to busy real-estate professionals who need to access a responsive, available MLS at any hour of the day or night.

Making sure that its Web-based MLS service is open for business and delivering lightning-fast response times used to be an expensive and challenging technology problem during the busy season. Real-estate activity in the springtime is five times busier for MLS PIN than at other times. To handle the ever-increasing Web traffic, the IT staff brought in six to eight additional Web servers each spring. The servers were expensive—around U.S.$300,000 for each new batch—and required a month's worth of installation work during the busiest time of the year.

Not only was this incremental server sprawl expensive to acquire and install; it was expensive to maintain, each year increasing the stress on the small IT staff of Matt Lavallee, Director of Technology for MLS Property Information Network. "Because our servers were purchased at different times, we had 27 different server configurations," he explains. "Any time there was a patch or driver update or a hardware issue, we had to track down the specifications of the particular server to service it. My staff of four spent two hours a day just doing hardware administration work."

MLS PIN couldn't simply turn off its non-busy servers during slow seasons, because each of the 1U Web servers were either named servers that responded to feeds from more than 40 other sites, or data brokers. All had to remain available, even when their processing load was miniscule. Consequently, MLS PIN paid year-round, sky-high operational costs, which included staff management time, power, and cooling.

"Our sprawl ultimately hit 85 servers, which was way too many for a company of our size," Lavallee says. "Most of the servers sit idle during off-season, running at only 5 to 10 percent utilization but costing us a lot of money."

The company's data storage scheme was also about to cost it a great deal of money. Its millions of home photographs were stored on a fiber channel storage system that would not scale. "Most fiber channel SANs [storage area networks] are not readily expandable; when you hit your system's capacity, you have to throw it away and start over," Lavallee says. "That didn't go over well with management." This array also required specialized expertise to maintain and constituted a significant annual cost that MLS PIN wanted to reduce.

Perhaps more troubling than the rising cost of its multiplying servers was the challenge of keeping them available. The servers were not configured for fault tolerance, so server failures or planned downtime involved a two-day process of manually moving that server's workload to a new server. "We are a 24/7 business, because real-estate professionals work at all hours," Lavallee says. "No downtime is acceptable, whether it's planned or not. Our board of directors ordered us to find a way to improve the availability of our service as a competitive driver."

Solution

While improving Web server fault tolerance was the reason that finally pushed MLS PIN to look into server virtualization, the savings to be had from reducing the number of servers and the work required to power and manage them were also extremely compelling. "We wanted to create a fault-tolerant infrastructure, better utilize our hardware, and create a dynamic technology environment that could help the business respond faster to market changes," Lavallee says. "Virtualization is tailor-made for these needs. You can stack virtual machines on physical servers, transition them between hosts, and during off-peak periods turn off physical nodes to bring down the operating cost of the entire environment."

Cost-Effective Choice

MLS PIN looked at both Hyper-V™, the hypervisor-based technology built into the Windows Server® 2008 operating system, and VMware. Because so much of its infrastructure required fault tolerance and operates as a public-facing service, MLS PIN would have had to license the most robust version of VMware, and the price was cost-prohibitive. "The VMware solution would have required a $160,000 licensing fee, which was 30 percent of our budget for the entire solution," Lavallee says.

Because MLS PIN already used Windows Server to run its Web server farm, the cost savings of using Hyper-V, which is included in some versions of Windows Server 2008, was overwhelmingly favorable. "VMware would have consumed 30 percent of our infrastructure expenses, and adding VMware-trained IT staffers would have been 20 percent more expensive than hiring Microsoft-trained professionals," Lavallee says. "Cost was such a driver that unless Hyper-V simply didn't work, we weren't even going to look at VMware."

Hyper-V also had functional advantages over VMware. Lavallee liked the integrated management capability provided by Microsoft® System Center Virtual Machine Manager 2008, which provides centralized management of virtual machines, accelerated provisioning, and easy virtual machine performance tuning. "A big selling point of System Center Virtual Machine Manager 2008 is that it's a familiar toolset," Lavallee says. "Anyone who's managing Windows®-based servers is already familiar with the interface."

Fewer Bigger Servers

MLS PIN deployed Windows Server 2008 Datacenter on 20 HP ProLiant DL585 servers, each with four Quad-Core AMD Opteron processors, to create a consolidated, highly available server infrastructure. At the same time, the company replaced its storage infrastructure with Internet SCSI (iSCSI) storage over a 10-gigabit Ethernet connection at a substantial cost savings over fiber channel storage. The Sanbolic Melio clustered file system was installed to provide shared access to the iSCSI storage LUNs (logical unit number) from both host servers and virtual machines.

MLS PIN has created several Hyper-V clusters: two primary clusters with six nodes (servers) apiece, and two secondary clusters with three nodes each. During peak season, MLS PIN runs 132 virtual machines across these clusters. During non-peak season, MLS PIN runs just 25 virtual machines on one of the clusters and powers down the other hosts. Lavallee runs both Windows Server 2008 and Windows Server 2003 as guest operating systems on the virtual machines. Virtual-machine workloads include the company's MLS system, based on Internet Information Services (IIS) version 7.0, and Microsoft ASP.NET Web components.

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Critical Partner Solutions

When MLS PIN was planning out the storage for its new virtualization clusters, Microsoft recommended Sanbolic, a Microsoft Certified Partner, of Watertown, Massachusetts, as a vendor that provides a clustered volume manager and clustered file system that is designed specifically for Windows Server. "Provisioning storage is critical in a virtual-machine world," Lavallee says. "It's the most complicated part of virtual-machine clustering. We were trying to get the configuration of our iSCSI storage area network down to a minimum."

The Sanbolic Melio FS clustered file system provides simultaneous access from multiple physical or virtual servers to data on iSCSI or fiber channel SAN storage. Melio FS uses 64-bit architecture, which allows very large volume and file system sizes. The file system also incorporates quality-of-service assignment to allow prioritization of defined workloads in bandwidth-constrained environments.

"Melio FS provides two key advantages for us," Lavallee says. "By providing a single storage LUN for virtual machine files, we greatly simplify the storage configuration required to enable quick Hyper-V migration. More importantly, Melio allows us to provide shared access to application data on a SAN from multiple virtual servers. This dramatically improves the manageability of production releases and allows us to quickly provision new virtual machines in response to traffic. It also gives us the real-time infrastructure capabilities that we believe are the cornerstone of the next-generation data center."

MLS PIN also partnered with Double-Take Software, of Southborough, Massachusetts, to deploy Double-Take for Virtualization, which performs byte-level replication and host-level fault tolerance for its Windows Storage Server infrastructure. MLS PIN uses Double-Take to synchronize data between iSCSI SANs in its primary and disaster-recovery data centers.

Common Management Paradigm

MLS PIN uses Microsoft System Center data center solutions to manage its infrastructure. The company has turned to Microsoft System Center Operations Manager 2007 for server and performance monitoring; Microsoft System Center Data Protection Manager 2007 for disk and tape-based server backup; and Microsoft System Center Virtual Machine Manager 2008 to manage virtual machines.

Using the Windows PowerShell™ command-line interface and scripting language included in System Center Virtual Machine Manager 2008, Lavallee's staff automates virtual machine creation and other tasks. They have also used System Center Virtual Machine Manager 2008 and other tools to set up a dashboard-reporting infrastructure that shows them at a glance how all their virtual machines are performing.

"System Center Virtual Machine Manager 2008 has tools that our staff already knows and uses," Lavallee says. "It works as an extension to System Center Operations Manager 2007. The System Center programs are all very complementary, and there's real benefit to having them so well integrated. Being able to do reporting, diagnostics, and direct management using a common interface saves time."

Benefits

By adopting virtualization as a key business strategy, MLS PIN has created a more dynamic data center that can quickly adapt to business needs. The company has also achieved nearly 100 percent uptime, which is critical for delivering nonstop access to its MLS service. It has also reduced

infrastructure costs by 60 percent and ownership costs by 30 percent.

Business Agility Improved

MLS PIN is no longer hamstrung by a data center full of physical servers that have to be ordered, deployed, manually managed, powered, and cooled. Now it relies primarily on dozens of virtual machines that can be deployed, moved around, or decommissioned in minutes, as the business requires. "Virtualization frees the business to grow," Lavallee says. "We have been able to achieve a dynamic IT infrastructure and can almost double computing capacity on demand, across the enterprise, which is huge."

The Melio FS file system enhances this agility: Because it enables all virtual machines to access the same data simultaneously, MLS PIN can deliver more responsive performance to real-estate professionals. "If our Web traffic spikes, we can add new virtual machines and have them access a single pool of data without configuring storage for them," Lavallee says. "This enables our data center to dynamically respond to changes in Web traffic."

Availability Increased

Taking advantage of the cluster support and Hyper-V technology in Windows Server 2008, MLS PIN has been able to deliver the level of fault tolerance that its directors demanded. "Windows Server 2008 and Hyper-V make clustering super-easy," Lavallee says. "For people who have been wary of deploying clusters, it's definitely time to make the move. With Hyper-V, you can deliver consistent availability without diving into an entirely new realm of technology. We can now give our customers a pretty solid guarantee of 100 percent uptime without breaking the bank."

Hardware-Related Costs Reduced by 60 Percent

In addition to meeting its primary goals of increased business agility and nonstop availability, MLS PIN has achieved impressive savings by moving to virtualization with Hyper-V. "We've been able to consolidate our infrastructure by 60 percent, from 60 to just 20 physical servers," Lavallee says.

MLS PIN not only reduced hardware and software acquisition costs, but also electrical costs. "We can dynamically provision servers and dynamically turn off servers that we don't need in non-peak times. This reduces our electrical needs by 60 percent, which is a savings of nearly $30,000 annually," Lavallee says.

Even for servers that are powered up, virtualization provides efficiencies. "The electrical power required to run six virtual machines on one physical host is about 45 percent lower than that required to run six physical machines," Lavallee says. "During slow-down periods, we've been able to reduce operational costs by 40 percent or more, which maximizes value for our shareholders. Also, green computing is one of our top priorities, so we're able to make major strides in reducing our carbon footprint."

Ownership Costs Reduced by 30 Percent

The savings continue. By deploying Windows Server 2008 Datacenter, with its liberal virtual-machine licensing options, MLS PIN achieved savings of $200,000 over other editions of the operating system.

MLS PIN does not need to hire staff members with specialized VMware training. And provisioning virtual machines is much faster, thus much less expensive, than manually provisioning physical servers. "Provisioning a virtual machine takes 15 seconds versus a couple of hours for a physical server,"

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For more information about MLS Property Information Network products and services, call (800) 695-3000 or visit the Web site at:
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Lavallee says. Also, replacing the company's heterogeneous server infrastructure with one that is leaner and standardized has contributed to reduced management overhead. "My staff is probably spending 30 percent less time on mundane server administration, which gives them more time to work on real projects," he adds.

With the Sanbolic file system, the IT staff spends significantly less time managing storage than it would have otherwise, as well. "With 24 virtual machines, we would have had to manage 24 LUNs in each cluster," says Lavallee. "With Sanbolic, we have just one drive presented to the host that serves all our virtual machines. Likewise, we only have to present one shared volume to those virtual machines for their application data.

"Combining iSCSI with Sanbolic's file system, we've taken two-thirds of the management overhead of fiber out of the picture," Lavallee concludes. "All in all, with Windows Server 2008 and Hyper-V, our new servers, and our storage design, we've lowered our total technology cost of ownership by at least 30 percent. That's quite an impact on our company's bottom line."

Microsoft Virtualization

Microsoft virtualization is an end-to-end strategy that can profoundly affect nearly every aspect of the IT infrastructure management lifecycle. It can drive greater efficiencies, flexibility, and cost effectiveness throughout your organization. From accelerating application deployments; to ensuring systems, applications, and data are always available; to taking the hassle out of rebuilding and shutting down servers and desktops for testing and development; to reducing risk, slashing costs, and improving the agility of your entire environment—virtualization has the power to transform your infrastructure, from the data center to the desktop.

For more information about Microsoft virtualization solutions, go to:
www.microsoft.com/virtualization

Software and Services
- Microsoft Server Product Portfolio
  – Windows Server 2008 Datacenter
  – Windows Server 2008 Hyper-V
  – Microsoft System Center Data Protection Manager 2007
  – Microsoft System Center Operations Manager 2007
  – Microsoft System Center Virtual Machine Manager 2008

Hardware
- HP ProLiant DL585 servers with four Quad-Core AMD Opteron processors

Partners
- Sanbolic