HEALING
SLUGGISH
STORAGE

PMMC runs SQL Server approximately 40 percent faster with Dell EqualLogic iSCSI SAN, speeds storage provisioning for new clients

Preferred Medical Marketing Corporation (PMMC) enables hospitals and large physician groups to remain financially secure by analyzing the economic implications of new reimbursement terms with insurers, monitoring the payment accuracy for services rendered, and recovering underpayments. PMMC also assists healthcare providers in moving toward greater pricing transparency. "Our latest tools deliver market-based pricing analysis and then convert this information into net revenue projections. In addition, PMMC offers an application that generates price quotes for patients in an easy-to-understand format so they can begin making payments before the service is actually rendered," explains Greg Kay, vice president of marketing for PMMC. "We have incorporated analytical modeling into our programs that is cutting-edge in our industry."

CHALLENGE
Awkward management user interfaces and expensive hardware made it difficult for PMMC to provision storage as needed for Microsoft® SQL Server® databases on its previous Fibre Channel storage area network (SAN), slowing customer service and boosting workload for storage administrators.

SOLUTION
A 4.8 TB Dell EqualLogic™ iSCSI SAN accelerated storage provisioning, reduced administration time, and allowed the company to expand capacity while creating a platform for server virtualization.

BENEFITS
Get IT Faster
- Able to implement Dell EqualLogic iSCSI SAN in less than one day
- Rapidly provisions new server and storage resources, meaning fast, easy scaling of storage for new and existing clients

Run IT Better
- Intelligent SAN management tools help simplify storage management
- Dell EqualLogic iSCSI SAN boosts SQL Server performance an estimated 40 percent, improving customer satisfaction

Grow IT Smarter
- Dell EqualLogic SAN saved about US$38,000 in storage array–related costs
- Modular iSCSI SAN allows PMMC to easily expand volumes and capacity to serve larger customers compared to Fibre Channel SAN

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Rob Rochelle, vice president of IT, Preferred Medical Marketing Corporation

HOW IT WORKS

HARDWARE
- Dell EqualLogic™ PS5000XV iSCSI SAN
- Dell™ PowerEdge™ 2950 servers with dual-core Intel® Xeon® processors

SOFTWARE
- Microsoft® SQL Server® 2000 SP4
- VMware® Infrastructure 3.5

PMMC tailors its application delivery to its customers' preferences. Its solutions can be run as applications at the customer site, as a Web-enabled application hosted at the PMMC data center, or as a "service bureau" in which PMMC is responsible for system support services as designed by the client.

No matter how they are delivered, the PMMC application services require a flexible storage infrastructure. Generating the financial analysis its customers demand requires running real-time statistical models, and because of the various delivery models, it is difficult for PMMC to predict how much patient and financial information it will have to store or access at any time. "We use Microsoft SQL Server to host databases ranging from 5 GB up to 100 GB for a busy hospital or a physician's practice that processes hundreds or thousands of transactions a day," says Rob Rochelle, vice president of IT at PMMC.

For four years, PMMC relied on a Fibre Channel SAN for its storage needs, but the SAN was running out of space. The company needed more

storage, and Rochelle wanted to move away from Fibre Channel to try to reduce hardware costs. "When you light up a Fibre Channel link, you have to install a host bus adapter in the server, lay specialized cables, and so forth," says Rochelle. "Fibre Channel components are relatively expensive for a small shop like ours and put an increasing strain on our budget."

The Fibre Channel SAN also sapped the productivity of the PMMC IT team, hampering the company's ability to serve its customers. Provisioning new storage volumes was a labor-intensive process, and Rochelle found that his team was spending far too much time shuffling data or otherwise tending the company's SAN. "Let's say we had a client who suddenly wanted to load data for the past six months to see what its reimbursements were," explains Rochelle. "Suddenly, our servers were full, and we didn't have an easy way to provision more storage space. One client's workload would slow down another client's workflow. Just adding a server forced us to load drivers and install applications to manage the connection."

PMMC needed a system that was far simpler to manage, enabling the IT group to focus on mission-critical activities such as maintaining performance and strategic issues such as assuring security, rather than on day-to-day chores like assigning more space to servers. The business also needed to be able to grow its storage—and reallocate it dynamically—to meet the needs of its customers. "Our storage infrastructure simply can't be a barrier to our business," says Kay.

EASE-OF-USE TIPS SCALES IN FAVOR OF DELL ISCSI SAN
Rochelle began looking at iSCSI-based SANs because of their lower cost and ease of use compared to Fibre Channel storage. "Even jobs that should have been easy, like expanding a volume or a LUN, forced us to go back to the manual or look for help on the Web. When you're trying to run your business and serve customers, that's just too much hassle," says Rochelle. As soon as his team saw how easy to use the Dell EqualLogic™ iSCSI SAN interface was, he explains, "We knew that was the way to go."

Rochelle evaluated a number of vendors, eventually choosing Dell as the best fit for PMMC. He was familiar with Dell from previous experience and had a favorable impression of the company's reputation for quality products and services. However, his decision ultimately turned on several factors. Rochelle found that the Dell offering included many of the software options that other vendors provided only for an additional cost, including features such as auto-replication; dynamic, automatic load balancing; role-based administration; and simple, online volume management, as well as the Dell EqualLogic Auto-Snapshot Manager/Microsoft Edition with Smart Copy for SQL Server. "The role-based administration capabilities of the Dell EqualLogic SAN management interface are particularly useful because we can give users tools to monitor and track their own storage usage and their available space," says Rochelle. "That reduces the IT department workload because we generally only have to get involved if there's a problem."

The tipping point in Rochelle's evaluation came when PMMC examined the Dell EqualLogic PS5000XV management interface. Rochelle and his team tested the SAN management features by performing common management tasks: setting up and attaching a volume to a server, taking a snapshot of the data on it, and moving that data to another volume. The simplicity and ease with which these tasks could be performed impressed Rochelle. "We chose the Dell EqualLogic SAN over less-expensive offerings on the strength of the management interface," says Rochelle. "I felt that the simpler management tools would give us a better payback over time, and they have."

The PMMC IT team implemented a Dell EqualLogic PS5000XV iSCSI SAN with 4.8 TB of raw storage. With the new Dell setup, Rochelle's staff can provision storage without sacrificing performance because of the EqualLogic line's virtualized self-managing architecture, which continuously monitors storage resources and automatically load-balances data across controllers, network connections, and disk drives for optimal performance. Because it can now provision

storage space rapidly when a customer calls with a question, PMMC can analyze data quickly and answer customer questions fast, while spending less time and effort fine-tuning the storage system.

Rochelle also used the SAN upgrade as an opportunity to also purchase Dell™ PowerEdge™ 2950 servers, each with two quad-core Intel® Xeon® processors, to run Microsoft® SQL Server® 2000 SP4 as well as VMware® Infrastructure 3.5. PMMC plans to use the VMware virtualization software to eventually reduce its server count by 33 percent. The Dell PowerEdge 2950 servers are ideally suited to virtualization and running VMware: they are two-socket rather than four-socket servers, which reduces the per-socket licensing costs for the VMware software.

DELL EQUALLOGIC iSCSI SAN CUTS STORAGE IMPLEMENTATION TIME TO LESS THAN ONE DAY

Rochelle and his team were able to set up the new servers and SAN in just over half a day, far less than the multiday project that Rochelle had expected. Implementation was simple, requiring only approximately 15 minutes to bring up the first server and about four hours to transfer all data from the old system to the new one. "I'm still slightly amazed at how simple and fast the initial implementation was," says Rochelle. "We didn't have to spend time on drivers or cabling, and the SAN software handled most of the initial setup and provisioning details automatically."

DELL EQUALLOGIC iSCSI SAN BOOSTS APPLICATION PERFORMANCE BY APPROXIMATELY 40 PERCENT

The virtualization and automatic load balancing of the 4.8 TB Dell EqualLogic SAN has helped improve the speed of the time-sensitive patient and financial information analyses running on SQL Server upon which PMMC healthcare customers depend. "We haven't done any true benchmarking because we had to bring up the new storage space for new clients, but for queries on some very big databases—something like a million-record table

of patient data—we're seeing average response times fall 40 percent," says Rochelle. "In the best case from our test group, the response time dropped from about 15 seconds to about 6 seconds."

An approximate 40-percent performance improvement in SQL Server performance "is a big difference when a hospital financial counselor has a patient on the phone waiting for a price estimate on a procedure, or a customer needs to generate a reimbursement report for thousands of claims," adds Kay. The speed improvement can also result in higher customer satisfaction and customer retention, as well as improved word-of-mouth recommendations that help PMMC attract customers.

INTELLIGENT SAN TOOLS HELP SIMPLIFY STORAGE MANAGEMENT

PMMC estimates that the intelligent management capabilities and virtual architecture in the Dell EqualLogic iSCSI SAN dramatically reduce the time that the PMMC team must spend on storage administration. That means that Rochelle's staff can spend their time on projects that help PMMC serve its customers better instead of SAN maintenance and troubleshooting. "Since we implemented the Dell EqualLogic SAN, we haven't had to spend even 30 minutes on maintenance," says Rochelle.

The Dell EqualLogic SAN helps enable the PMMC IT staff to prevent—not just respond to—problems, saving time on troubleshooting and helping to enhance the company's reputation for reliability. "The Dell EqualLogic SAN gives us more advance notice of potential problems with active counters and monitors that tell us if something is getting out of range," says Rochelle.

The easy-to-manage SAN has also helped PMMC focus on security. "The time that you are not spending adding space to a LUN on a SAN is time that you can spend making your customers' data more secure and more compliant," says Rochelle. "We can spend more time understanding patient privacy and security regulations, and making sure we're responding to them proactively. That gives us a real edge in the market over our competitors."

FULL-FEATURED DELL EQUALLOGIC ISCSI SAN HELPS REDUCE TIME SPENT MANAGING SOFTWARE LICENSES

The all-in-one package of hardware and software in the EqualLogic PS Series from Dell helps reduce the time that PMMC spends tracking software licenses, helping to ensure that all users are licensed, and responding to queries from software companies. "License compliance is a big problem for small companies because you have so many different software vendors," says Rochelle. "Because all the software is bundled by Dell, I can handle all my license renewals at one time. That's a big time savings."

SNAPSHOTS EXPECTED TO IMPROVE PMMC RECOVERY CAPABILITIES

PMMC plans to improve its data availability and disaster response capabilities by capturing snapshots of its servers at given points in time—a new strategy for the company. With the simple management interface of the Dell EqualLogic SAN, the PMMC has already quickly created snapshots of several databases and plans to do more. "The snapshot capability of the Dell EqualLogic SAN is a great disaster recovery tool because we can pull an image pretty much anytime we want to, hold it, and then restore from it as needed," says Rochelle. Those improved data recovery capabilities are an important advantage for PMMC and healthcare providers it serves—all of which face regulatory requirements to keep patient data secure as well as available.

DELL ISCSI SAN POSITIONS PMMC FOR FUTURE GROWTH

The economics of the healthcare industry, and the day-to-day mechanics required for healthcare providers to get paid, are constantly changing. To continue to grow, PMMC must provide fast service to an ever-larger number of customers—and quickly adapt its storage infrastructure as its customers' needs change. Implementing the Dell iSCSI SAN has helped make it easier for PMMC to administer its database servers, and thus to meet the ever-changing needs of its customers.

The scalability of the Dell EqualLogic SAN "has definitely allowed us to go after much larger clients, and to allow those clients to store larger amounts of historical data," says Kay. "With the Dell EqualLogic SAN, we can easily scale from smaller clients all the way through the 3,000-plus physician groups and multi-hospital organizations," says Kay.

Bottom line, PMMC is able to spend less time monitoring its own storage infrastructure and more time providing value-add analytical support to its clients such as cash flow, profit margins, and days of outstanding payments for its customers. "We succeed when our customers and their patients succeed," says Kay. "By reducing the day-to-day burdens of storage management, the Dell EqualLogic SAN helps us focus on meeting the financial challenges facing healthcare providers. And that helps us assure better and more affordable healthcare for patients."

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