



Southwestern/Great American virtualizes on IBM BladeCenter for full disaster recovery

Overview

■ The Challenge

Sales-based Southwestern/Great American (SWGA) determined that multiple business systems were not serving the corporation well. Different backup, archive and restore processes and an uncertain disaster recovery plan all needed to be improved to secure business data. The technical objectives were to simplify the IT infrastructure, reduce costs and implement a scalable solution.

■ The Solution

Worked with SAP, IBM and Dynamix, an IBM Premier Business Partner to unify and consolidate SAP and non-SAP application environments onto IBM BladeCenter and IBM Systems Storage DS4700; used VMware ESX to run multiple SAP and non-SAP application servers on each physical server; automated data backup, restore and archive processes with IBM Tivoli Storage Manager; implemented second IBM BladeCenter and DS4000 solution as disaster recovery and failover service.

■ The Benefits

Automatic backup, restore and archive processes reduce IT administration workload and provide reliable data protection; CPU utilization has been raised as high as 70 per cent, reducing the need to invest in new servers.

■ Key Solution Components

Industry: Retail

Applications: SAP® ERP 6.0, including financial accounting, controlling, sales and distribution, materials management, and warehouse management functionalities, SAP Solution Manager 4.0

Hardware: IBM® BladeCenter®, IBM HS21 blade servers, IBM System Storage® DS4700

Software: IBM Tivoli® Storage Manager, VMware® Infrastructure including VMware® vCenter Server and VMware® ESX

Services: IBM Premier Business Partner Dynamix, IBM Global Financing

Established in Nashville, Tennessee in 1855, Southwestern/Great American, Inc. today is a diversified, growing, international, sales-driven, employee-owned corporation. Its flagship is the Southwestern internship program. College and university students from all over the world participate in Southwestern's summer program. From these students, companies are started using the capital, support and resources of SWGA's business incubator.

Using shared corporate services and led by former Southwestern student dealers, some of the many industries include Direct Selling, Real Estate, School Fund-Raising, Customized Publishing, Fine Art Consulting, Work and Travel Sponsorship, Insurance and Financial Services, Executive Search and Recruitment, Sales Consulting and Sales Training.

SWGA has relied on SAP applications to manage its business for many years, alongside Microsoft® Office®, Exchange® and other Microsoft Windows®-based applications.

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Dave Brogan, Database Administrator/
Technical Support, Databases,
Southwestern/Great American

“One of the advantages is that we can do more than 90 per cent of our restores without the need to recover tapes from our warehouse or even mounting any tapes. You don’t have to worry about what data is on which tape, it’s all managed by Tivoli Storage Manager.”

Ed Solima, Director of IT, Southwestern/
Great American

There was little application integration between the two environments, particularly at the infrastructure level. Separate backup, restore and archive procedures were required – operated manually – and there were two disaster recovery solutions in place. This twin-track approach tended to increase operational expenses, with two backup sets to manage and store, and additional hardware investments. Disk capacity on the systems was not shared, resulting in over-investment in storage.

Choosing the right route

SWGA engaged SAP, IBM and an IBM Premier Business Partner, Dynamix, to address its business objectives. In particular, SWGA wished to improve, unify and simplify its data backup, restore and archive processes, and implement a single disaster recovery procedure for all business systems.

Long experience of SAP applications had shown SWGA the value of reliability and performance. Though Dell was the preferred hardware vendor for non-SAP applications, the move to blades prompted the team to invite IBM to propose a solution, too. The close relationship between SAP and IBM gave SWGA confidence in the system sizing proposal, and real-world success running SAP applications on other IBM platforms showed that IBM understood the business needs, offering a sound business case. Funding for the complete solution was provided through IBM Global Financing on a three-year lease. A major concern was to create a configuration that would provide very high reliability, as the SAP applications are central to SWGA’s business operations.

SWGA selected an integrated solution based on IBM BladeCenter, IBM DS4700 storage, IBM Tivoli Storage Manager and VMware ESX. This

highly robust solution offers a unified data backup, restore and archive environment, and introduces a full disaster recovery solution. Additionally, the storage area network helps to reduce total storage costs by maximizing disk utilization, and IBM Tivoli Storage Manager helps to cut system administration costs through process automation.

Sizing the solution

The first step was to size the solution, based on existing usage data. SWGA uses a range of SAP ERP functionalities, including financials, controlling, sales and distribution, materials management and warehouse management. Some 250 online or dialog users access the applications regularly, accessing 600GB of data. A number of offline or batch processes, such as standard reports, are run during off-peak hours, and some power users are able to run ad-hoc queries either online or batch.

SWGA approached the IBM SAP Sizing Center, a service offered by the Techline Americas group in West Chest, PA. which provided its recommended CPU, memory and I/O capacities. These system specifications were used to generate the hardware tender documents sent to Dell (as the incumbent supplier for Intel processor-based servers) and the IBM Business partner, created a robust solution with high availability and disaster recovery factored in.

Completing the migration

SWGA took a two-stage approach: first moving to the new infrastructure and then upgrading the SAP applications.

In the December 2007 holiday season, SWGA migrated its existing SAP R/3 4.6C applications to the new BladeCenter servers, each populated initially with three HS21 blades. The BladeCenter and BladeServers

architecture leverages high-performance Intel quad-core processors to provide excellent performance for SAP and non-SAP applications. The HW is based on multiple levels of redundancy and as such IBM BladeCenter is highly available and can support the IT reliability needs of SWGA. One BladeCenter supported the production environments for both SAP and non-SAP applications, and the second BladeCenter supported development and test environments. The SAP landscape replicated the previous production, development and test environments as closely as possible, with very little change to the user interfaces or experience.

The intention of this arrangement was to deploy, test and operate existing SAP applications on VMware infrastructure, BladeCenter and a storage area network (SAN) based on DS4700 storage. This intermediate stage would also allow existing Microsoft Windows-based applications and data to be integrated into the SAN, and a unified backup process created and deployed with minimum business risk. Dynamix provided migration services, assisted by a certified SAP Migration Consultant based in Germany. Dynamix also advised on the implementation and configuration of VMware ESX on the BladeCenters, as both technologies were new to SWGA.

Dave Brogan, the database administrator who led the migration process, comments, "We were looking to virtualize basically the entire data center, and it seemed that IBM BladeCenter would be the most cost-effective way to deploy virtual machines – and it certainly has been: adding a blade to the chassis has been very easy and cost-effective."

SAP application upgrades were, by comparison, an even easier process.

During the Independence Day holiday, which conveniently fell on a Friday in 2008, SWGA successfully migrated to SAP ERP 6.0.

Achieving full disaster recovery

SWGA took the opportunity to move both the SAP and general business applications away from direct-attached storage to a storage area network (SAN). The production location contains the IBM DS4700 storage system, with 2TB (raw) capacity, configured as RAID 5. A Quad-Core Intel Xeon processor X5470-based server provides backup and archiving service for heterogeneous server and storage environments.

Tivoli Storage Manager completes the daily differential backup by creating virtual tape images copied to tape. Physical tape management is handled by Tivoli Storage Manager, and the manually updated Access database has been eliminated.

Tivoli Storage Manager tracks changes to system and SAP application as well as database and file data. Using Tivoli Storage Manager has also dramatically reduced the backup duration, since the incremental backup feature eliminates the need for a full backup except where selected for operational reasons.

Ed Solima, Director of IT at Southwestern/Great American, says, "One of the advantages is that we can do more than 90 per cent of our restores without the need to recover tapes from our warehouse or even mounting any tapes. You don't have to worry about what data is on which tape, it's all managed by Tivoli Storage Manager."

SWGA created a secondary site with a similarly sized IBM BladeCenter and

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IBM DS4700 storage system. This site houses their test and development SAP environments. It also serves as a fail-over site with production data being replicated to the secondary site using a product from Vizioncore called vReplicator.

SWGA is currently working through the replication setup with the plan to have full disaster-recovery capabilities by implementing the two BladeCenter and storage solutions. If the SAP production system should be struck by disaster, the development and test BladeCenter is available as a failover production system – correctly sized, with a known operating environment.

Selecting the virtual route

The VMware virtualization approach has created a simpler data-center solution for SWGA, as it removes the need for a separate physical server for each part of the SAP ERP environment. If demand rises, SWGA is able to create a new ESX virtual machine on an existing blade for the new service within a matter of hours. This includes creating temporary virtual machines for software testing, something that was impossible before.

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The virtual environment has also increased total uptime. Where a physical server requires maintenance, SWGA uses VMware VMotion to move the virtual machines it contains to another blade, so there is no service interruption.

Choosing IBM solutions

The corporation’s long experience of SAP applications had shown SWGA the value of reliability and performance. Though Dell was the preferred hardware vendor for non-SAP applications, the move to blades prompted the team to invite IBM to propose a solution, too. The close relationships between SAP and IBM provided a convincing system-sizing proposal, and the integrated BladeCenter, DS4700 storage and Tivoli Storage Manager proposition offered a sound business case. Funding for the complete solution was provided through IBM Global Financing on a three-year lease.

Achieving business results

Peak sales for SWGA are typically in the Fall, so embedding the changed landscape and completing the SAP application upgrade in July was essential.

The systems and application migrations were achieved on time and on budget, and have delivered system response times, even at times of maximum activity, of less than 0.8s – and normally below 0.4s. The integrated, automated backup, restore and archive processes provided by Tivoli Storage Manager have significantly reduced the IT team’s workload, and the infrastructure for full failover and disaster recovery capabilities have been implemented for the business-critical production environment.

Ed Solima concludes, “The BladeCenter solution has helped us to simplify the IT infrastructure and reduce costs. We now have a model in place for full disaster recovery capabilities, with automated processes that significantly reduce our IT administration workload with a rock-solid, highly reliable infrastructure ready for the future.”



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