



CASE STUDY

Solution at-a-glance

Company

RBC Financial Group

Industry

Financial services

Employees

60,000

Storage application

- Virtual tape
- Virtual Storage Manager® (VSM®) graphical user interface (GUI) management
- Tape storage and archiving

StorageTek® solutions

- Virtual Storage Manager (VSM) system
- T9840B tape drives
- Nearline® PowderHorn® 9310 tape libraries
- T9840 tape drives
- Host software component (HSC) software
- VSM GUI management application software

Business results

- Significant reduction in automated tape library problems versus older automated solution from another vendor
- VSM solution delayed processor purchases/ upgrades for six months by liberating million instructions per second (MIPS) previously used for TMM
- 50 percent reduction in time to manage virtual storage managers with VSM GUI

RBC Financial Group

RBC Financial Group deposits substantial labor-hour savings to improve ROI.

Business issues

The sun never sets on RBC Financial Group's financial empire. Spanning 33 countries, the company's 60,000 employees roll up their sleeves to deliver financial services in the personal and commercial sectors to 12 million clients. Meeting customer expectations around the globe means that RBC Financial Group places a premium on reliability and availability of its IT infrastructure devices and data, respectively.

So when Dan Ledgerwood, RBC Financial Group's team leader of Storage Management Services (SMS) and Virtual Tape, began to experience problems with his older, non-StorageTek automated tape libraries, he knew he had to take action. The 1990s-era equipment was wearing out before his eyes — presenting maintenance challenges and difficulties in obtaining replacement parts and requiring greater numbers of labor hours to complete repairs.

In response, Ledgerwood implemented a hierarchical storage management (HSM) processing solution using a name-brand vendor's tape libraries and drives. And his problems were solved ... or so he thought. Unfortunately, 500 logged problems and 1,600 troubleshooting labor hours led to an enterprisewide loss of confidence in tape solutions. Ledgerwood needed a reliable solution to the automated tape library question. But that wasn't all.

On top of this, RBC Financial Group was experiencing a 30 percent compound annual data growth rate. This inspired Ledgerwood to take a long-term strategic view of his IT requirements. To his growing list, he added high scalability and sufficient capacity to meet corporate needs for the next five years.

And because his budget did not include hiring more staff, he needed software application solutions that would help manage his hardware more efficiently using the same number of administrators or fewer.

With these requirements in mind, RBC Financial Group exhaustively evaluated potential vendors, settling on StorageTek. The order was given to proceed, and StorageTek began its phased implementation to overcome the organization's challenges.

The solution

RBC Financial Group's expansive infrastructure matches its global operations. Four data centers across Canada deliver 11,000 million instructions per second (MIPS) of processing power, 43.2 terabytes (TB) of disk and 585 TB of raw tape data.

The organization phased out its older automated cartridge systems by replacing them with seven PowderHorn 9310s. It also replaced the less reliable tape drives with 240 T9840 tape drives.

In a separate phase, RBC Financial Group deployed six Virtual Storage Managers® (VSMs) to replace the decade-old automated tape libraries. The organization uses the VSMs to more efficiently manage information across its lifecycle. The VSMs first place data within a disk buffer for fast performance and then migrate and stack it on high-capacity media as the frequency of access declines.

To cost-effectively manage the VSMs and their 315,000 virtual tape volumes, Ledgerwood installed StorageTek's new Web-based VSM graphical user interface (GUI) software management application. The application's GUI replaces command line interface commands and eliminates the need for administrators to write batch jobs to perform maintenance functions.

Financial benefits

A primary benefit to RBC Financial Group has been a 99 percent reduction in labor hours needed to administer the Automated Cartridge System and tape drives versus the phased-out legacy devices.

The VSM solution helped RBC Financial Group cut its MIPS growth by 50 percent in the first year of deployment. This resulted in substantial savings by delaying processor purchases and upgrades. Previously, various RBC Financial Group enterprise applications stored their data to tape. The tape mount management (TMM) process to complete this task drew on host processor MIPS. Ledgerwood replaced the TMM process with routines that write data to the VSMs. The VSM devices then process the data outboard of the host to liberate significant MIPS for use elsewhere.

When Ledgerwood migrated data from the unreliable legacy libraries to the VSMs, he achieved significantly greater compression rates than had been projected. Hence, far fewer T9840 cartridges were needed to meet requirements.

Moreover, the time dedicated to VSM management tasks was recently cut by 50 percent using StorageTek's VSM GUI application. Managing the VSMs has been simplified so much that junior administrators have been assigned to this.

Business benefits

Over time, the IT team gained renewed confidence in RBC Financial Group's reliable StorageTek-based tape solutions. In fact, the number of media and drive errors fell so precipitously that Ledgerwood was able to relaunch tape services to now-receptive end users. Thus, more data has been migrated from disk to inexpensive tape media in accordance with the organization's data lifecycle management plan.

Previously, Ledgerwood elected not to delegate the command line interface- and batch job-based VSM management tasks because it would have required significant training and support to bring users up to speed.

The VSM GUI application overcame these challenges. Its ease of deployment, maintenance and performance of administrative tasks enabled Ledgerwood to roll out the Web-based application to end users. They now create their own utilization reports, for example, and no longer draw on his team's resources to perform this routine task.

The time savings and ease of use and maintenance of the Web-based GUI have worked so well that RBC Financial Group plans to use this approach to install additional GUI management applications for other tape components in the future.

Technical benefits

RBC Financial Group achieved its reliability objectives by replacing old libraries with PowderHorn libraries and T9840 tape drives. Logged annual failures and troubleshooting labor hours were slashed from 500 and 1,600 hours respectively to 25 (95 percent reduction) and 15 (99 percent reduction).

The VSM GUI makes it easier for Ledgerwood to run his multiple volume cartridge (MVC) reports, sort by error condition and act on errors singly or as a multigroup event. Then he can refresh the report to address the next error condition without having to run the report again. Additionally, he's now able to break up large reports of as many as 10,000 lines into manageable segments for troubleshooting efforts.

About RBC

Royal Bank of Canada (TSX, NYSE:RY) uses the initials RBC as a prefix for its businesses and operating subsidiaries, which operate under the master brand name of RBC Financial Group. Royal Bank of Canada is Canada's largest financial institution as measured by market capitalization and assets, and it is one of North America's leading diversified financial services companies. It provides personal and commercial banking, wealth management services, insurance, corporate and investment banking, and transaction processing services on a global basis. The company employs 60,000 people who serve more than 12 million personal, business and public-sector clients through offices in North America and some 30 countries around the world.



STORAGETEK®

ABOUT STORAGETEK®

Storage Technology Corporation (NYSE: STK), a \$2 billion worldwide company with headquarters in Louisville, CO, has been delivering a broad range of storage management solutions designed for IT professionals for over 30 years. StorageTek offers solutions that are easy to manage, integrate well with existing infrastructures and allow universal access to data across servers, media types and storage networks. StorageTek's practical and safe storage solutions for tape automation, disk storage systems and storage integration, coupled with a global services network, provide IT professionals with confidence and know-how to manage their entire storage management ecosystem today and in the future.

StorageTek products are available through a worldwide network. For more information, visit www.storagetek.com, or call 1.800.275.4785 or 01.303.673.2800.

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Case study company: RBC Financial Group www.rbc.com

"StorageTek's VSMs have delivered in a number of ways. They enabled us to undo our TMM process that allowed our team to delay the purchase of processors for six months. The VSM GUI has made VSM management so much easier that I can do things in half the time it used to take."

"The VSM GUI functionality and performance more than justify the cost. We look at the Web-based GUI management model as a stepping-stone to deploying other products under the same interface provided by StorageTek. Between the point-and-click simplicity of the VSM GUI and being able to upgrade and maintain it from a single location, we'll be able to shift routine administrative labor hours elsewhere."

Dan Ledgerwood, Team Leader – SMS + Virtual Tape, RBC Financial Group

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