



GENERAL MILLS

SPEEDS UP THEIR BACKUP WITH NOVASTOR

CASE STUDY

Summary

In the mid 1990s, General Mills introduced the first HP9000 servers into their environment and were looking for scalable backup and restore software to achieve the most efficient use of hardware resources. After extensive research, General Mills chose NovaStor's HiBack backup and restore software.

At General Mills headquarters data center, NovaStor's HiBack Classic currently backs up more than 16 TB per day at a peak rate on a single server of more than 2.5 TB in five hours including full verification of the backup. The HP9000 SAN-based disk storage environment contains more than 100 TB serving 45 HP9000 servers. 23 of those HP9000 servers backup to one of four automated tape libraries. The other 22 HP9000 servers backup to another HP9000 server across a Gigabit Ethernet network. Located at General Mills' manufacturing and warehousing facilities, an additional 32 HP9000 servers each backup between 30 GB and 50 GB per day to a dedicated LTO-I tape drive using HiBack Classic.

Challenging demands of a global enterprise

General Mills, with annual net sales of \$12.3 billion, is a leading global manufacturer and marketer of consumer foods products. Its global brand portfolio includes Betty Crocker, Pillsbury, Green Giant, Häagen-Dazs, Old El Paso and more. General Mills produces and markets more than 100 U.S. consumer brands, more than 30 of which generate annual retail sales in excess of \$100 million. General Mills is also a leading supplier of baking and other food products to the foodservice and commercial baking industries.

General Mills' global business partners expect the enterprise to operate without interruption. The scope of General Mills' global activities and the size of the enterprise necessitate constant data availability to be achieved with the most economically efficient, high performing backup and restore process. Due to the high data volumes General Mills backs up every day, they require a high performance solution that makes the best use of their disk and tape storage hardware. Furthermore, General Mills faces a constant growth rate in both their SAP and non-SAP applications that requires fast, scalable backup and restore software.

Fast backups for minimal downtime at lowest cost ownership

After the acquisition of HP9000 servers, General Mills wanted to introduce a backup and restore capability that tapped the full potential of their disk and tape storage infrastructure. The ability to quickly backup an entire server including all file systems and directories in one backup job was a key requirement. Based on extensive tests, General Mills chose HiBack® Classic from NovaStor. The extraordinary performance, scalability and availability of the software results in minimal downtime – fulfilling General Mills' technological and economic demands. In the subsequent years, HiBack® Classic has met General Mill's backup and restore demands confirming their decision about NovaStor's software. HiBack® Classic has contributed to the reduction of the overall backup and restore costs by enabling the optimal use of hardware components. HiBack® Classic's unique and efficient data mover requires little resources while it reads and writes data at an extraordinarily high speed. HiBack® Classic allowed General Mills to meet the ever increasing performance requirements caused by increasing disk storage in the headquarters data center from roughly 20 TB in the mid-nineties to more than 100 TB today.

Mike Meinz, Director, Information Technology, with General Mills, summarizes the experience of the past decade: "Achieving high performance is important to us. NovaStor provides a software architecture that enables us to continuously reach our ambitious backup performance goals by using our disk and tape storage infrastructure in an optimal manner. NovaStor's distribution of metadata to various components in the software architecture and their capability to use multiple parallel processes to perform a backup job achieves high data throughput. Because of this, we have been able to increase the backup volume while decreasing the backup windows. The high speed, scalability and cost of ownership of NovaStor's products are unique among backup and restore software products and are essential for our daily business."



By satisfying our high performance demands, NovaStor has convinced us that their software architecture provides the scalability and flexibility we require. We are looking forward to continuing our close cooperation with NovaStor's data protection specialists.

Mr. Mike Meinz, Director, Information Technology

Constant data availability and excellent Performance

Beyond providing backup and restore software, NovaStor has also been a reliable partner to General Mills, by being responsive to their changing technology and data needs. For example, to enhance General Mills' backup performance, NovaStor has increased the number of parallel read processes from 50 to 100. Furthermore, NovaStor improved General Mills' backup performance by providing adjustable read and write block sizes as a part of their backup and restore software. By using the highly flexible, open interfaces of the software, General Mills has integrated HiBack® Classic seamlessly into the I.T. infrastructure. Moreover, General Mills not only automated all backup processes, but also all pre- and post-processes, such as closing a database before it is backed up. Today, General Mills backs up business-critical data from SAP R/3 and other Oracle-based applications running on HP9000 PA-RISC and IA-64 servers. To store the backup data, General Mills uses four 20-drive LTO tape libraries and creates 130 LTO-I tape cartridges per day. The daily backup volume presently totals more than 16 TB. NovaStor software products play a crucial role in handling these daily data volumes. Within General Mills' headquarters data center, HiBack® Classic transfers the data from the HP9000s via SAN ports to the tape library infrastructure at a sustained speed of 25 MB/sec per tape drive. One of the backup jobs uses 13 tape drives simultaneously for an aggregate backup rate greater than 300MB/sec. In a subsequent pass, the HiBack® Classic backup and restore software verifies that no errors occurred during the backup at sustained verify speed of 30 MB/sec per tape drive. "The purpose of a backup is to enable a fast restore," comments Mike Meinz, "The quality of a backup is defined by the availability of the data when it comes to recovery. NovaStor's HiBack® Classic software has been consistently fast not only when backing up but also when restoring data."

General Mills and NovaStor – an outlook

In July 2004, General Mills signed a new large-scale, long-term contract with NovaStor. General Mills plans to implement NovaStor's enhanced backup and restore software HiBack iXT®. Also, HiBack iXT® will be used for backup of a number of Linux servers to be used in a new business function. For this and future projects, General Mills counts on the comprehensive backup and restore software features as well as the data continuity expertise that NovaStor has demonstrated in the past. "NovaStor has been a reliable, strong partner, and responsive to General Mills' requirements and feature requests for our business-critical data backup and restore issues over the last decade" comments Mike Meinz.

General Mills' HiBack® installation at a glance

Company Profile

Leading global manufacturer and marketer of consumer foods products
Annual net sales: 12.3 billion USD

Technical Benefits

Backup volume: 16 TB/day
LTO-I tape cartridges: 130/day
Max backup speed: 25 MB/sec per tape drive
Max verify speed: 30 MB/sec per tape drive

I.T. Environment

Total disk storage: Greater than 100 TB in SAN
Backup Clients: 22 HP9000 servers backup to other HP9000s
Backup Servers: 23 HP9000 servers backup to tape libraries
32 HP9000 servers backup to individual tape drives
Tape libraries: Four 20-drive LTO-I libraries
Server SAN ports: 105
Tape library SAN ports: 40
Operating systems: HP-UX, planned: Linux

Business Benefits

- ❖ Constant data availability for business continuity
- ❖ Minimal downtime for full productivity
- ❖ Optimum use of resources for cost savings
- ❖ Fast and continuous return on investment

HiBack® Classic



Application Level



SAP R/3 and Oracle applications with greater than 100 TB of disk storage

Storage Level



23 HiBack® Classic Servers move 16 TB per day to four 20 drive LTO Libraries



Tape



Disk

Using HiBack® Classic, General Mills produces 130 backup tape cartridges per day.



NovaStor Software AG
Grundstrasse 12
CH-6343 Rotkreuz
Tel +41 (41) 798 33 55
Fax +41 (41) 798 33 99

NovaStor GmbH
Neumann-Reichardt-St. r. 27-33, Haus 11
D-22041 Hamburg
Tel +49 (40) 638 09 0
Fax +49 (40) 638 09 29

NovaStor Corporation
80-B West Cochran Street
Simi Valley, CA 93065 USA
Tel +1 (805) 579 6700
Fax +1 (805) 579 6710

www.novastor.com