CASE STUDY

Demonstrating Proven Business Value Through Backup Redesign: Repsol's Use of EMC Next Generation Backup and Recovery Solutions

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IDC OPINION

Through its research into customer adoption, usage, and benefits of EMC backup and recovery solutions, IDC quantified efficiency gains and financial savings through adoption of EMC backup solutions as part of wider virtualization strategies.

Repsol YPF (Repsol) was one of ten companies recently interviewed by IDC in order to quantify the business value of customers using EMC backup and recovery solutions. It has achieved significant efficiency gains and financial savings through adoption of EMC solutions as part of its wider IT modernization strategy. Many of the interviewees had common challenges as they sought to improve the backup, recovery, and availability of their data and applications.

IDC believes that Repsol is a representative example of the operational and financial benefits that a widely distributed enterprise can realize when transitioning away from legacy tape as a backup and disaster recovery medium.

SITUATION OVERVIEW

Organization Overview

With more than 25,000 employees in over 30 countries and €4.7 billion in net income after taxes in 2010, Repsol YPF (Repsol) is Spain's largest oil company. With such large numbers of IT users and distributed locations it is hardly surprising that the company was concerned whether its legacy tape-based backup infrastructure could support future data volumes. Coupled with the cost and administration of the tape infrastructure, Repsol reached the conclusion that it would need to change its outdated backup infrastructure to remain competitive.

Repsol is a fully integrated oil and gas company operating in Latin America, the Middle East, and North Africa. The company is a well known brand that controls YPF, Argentina's number one oil company, and has operations in 30 other countries. The company operates five refineries in Spain as well as one in Peru and produces chemicals, plastics, and polymers. It sells gas under the brands Campsa, Petronor, and Repsol at more than 6,000 service stations in Europe and Latin America. Repsol is also one of Spain's largest sellers of liquefied petroleum gas and liquefied natural gas.
**Challenges and Solution**

Repsol's IT staffing is structured in a way to support its distributed locations and various business operations. IT staff includes 600 permanent employees and 1,800 external contractors distributed locally to manage and provide remote services to the global IT infrastructure. The company's backup infrastructure was based on tape, but managing tape was labor intensive and vulnerable to human error in its handling. Repsol initiated a project to gradually replace legacy tape libraries with EMC Data Domain and to eliminate the use of tape for the backup of virtualized servers with EMC Avamar. To date, a combined 4,500 virtualized and physical servers no longer use tape to backup.

Many of the challenges Repsol faced were common to users of legacy tape backup:

- **Administration**: Backup and recovery regularly required dedicated IT resources. This manual involvement resulted in human errors such as incorrect labeling of tapes, which were significantly increased at distributed locations.

- **Backup process**: Full backups were only completed on a weekly basis. Two backup copies were made; the first was kept in-house and the second sent to a secure location. This required additional manpower and cost to extract, package, transport, and house the backup tapes.

- **Recovery**: The recovery process was slow and laborious due to organizational complexities such as distributed locations and due to disparate media. Additional time was required to bring secondary tapes from the secure location, and once recovered the tape sometimes suffered physical degradation, adding to issues of reliability.

- **Virtualized environment**: The existing tape resources were insufficient in coping with the growing virtualized environment. Server sprawl impacted performance and made the management of storage requirements untenable.

**Making the Transition to a Next-Generation Backup Solution With EMC**

There are two aspects to Repsol's backup transformation: replacing legacy tape libraries across the backup process and eliminating the use of tape for backup of virtualized servers.

- **Replacing legacy tape libraries**. Repsol was already using Data Domain on a limited basis for some of its existing backups of physical servers at some of its central and midsize sites. Around two years ago, it was decided that all new backups were to be standardized on Data Domain across all sites. Existing tape backups remain accessible until they expire and then removed from the library. Overall, the investment in Data Domain has been largely offset by removing the need to extend and replace the tape-based infrastructure.

- **Replace tape for backup of virtualized servers**. In 2007, Repsol undertook a review of available virtual tape libraries to support backup for its a strategic shift to a virtualized environment. Following rigorous testing, the company opted for an EMC solution to support its evolution, combining its existing use of Data Domain with EMC Avamar to back up its virtualized environment. A proof of
concept ran for five months involving tests of backup, recovery, concurrence, and performance efficiency, and proved to be extremely successful.

"After the five months [proof of concept] we took the project live and have since consolidated 600 servers to 400 servers thanks to Avamar," said Maria Ángeles Cirugeda García, Director of Publishing and Infrastructure.

The success of the initial review and proof of concept stage has led to a phased tape replacement strategy. Once the tape libraries reach expiry, they will have completely replaced tape as their back-up medium. The investment in Avamar is focused more on process efficiencies than on direct ROI metrics.

"The savings made are not in terms of money, or saving in hardware because tapes are cheap," said García. "The gain with Data Domain is the capability to avoid human error by automating the process, and there is no need to have an operator present at the site. With Data Domain, there are some savings, such as tape cost, and not buying extra slots in the tape library. With Avamar, the savings come from the higher speed and savings in server management and administration."

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**Business Value Outcome**

Repsol is taking a more gradual approach to tape replacement for both its physical and virtual servers than other companies IDC has interviewed during this project. At the end of 2011, the company was about 70% towards its goal of complete tape elimination. Looking at the business benefits, Repsol has seen increased efficiencies and savings from its backup transformation:

- **Significantly faster recoveries**: Disaster recovery procedures are simpler to run and consolidate at an alternate data center. Avamar improved recovery and disaster recovery speed by 30%, and Data Domain improved recovery speeds by 20%, according to Repsol estimates.

- **Faster backups**: Back-up times are reduced 50% with Avamar, compared with traditional software solutions.

- **Reduced disk utilization**: Repsol previously used SATA disks as a backup target before transferring to the tape library, and it has been able to free up 30TB of SATA capacity overall with the change to Avamar and Data Domain.

- **Cost savings on hardware**: Although this is not the focus of the implementation for Repsol, the company removed 15 back-up servers at remote sites along with two midsized tape drives at the central datacenter

- **Reduced administrative costs**: Repsol can absorb growth in the business with the same number of technicians. The process of managing tape has been automated, saving time and allowing stretched IT staff to concentrate on higher end systems.
ESSENTIAL GUIDANCE

A number of key findings and observations can be taken from Repsol’s experience with replacing its legacy tape infrastructure:

- **Quantify hard costs of tape ownership**: Managing legacy tape systems can become increasingly burdensome, due to reliability issues with aging drives and libraries. Coupled with insufficient throughput performance to meet growing data volumes, more companies are looking to replace tape for operational backup and recovery. The operational overhead can be quantified in FTEs and added to hard costs such as tape media, vaulting, and transportation costs. When the capital cost of a tape infrastructure upgrade is also considered, the transition to a disk-based solution is not difficult to justify.

- **Use replication to enhance disaster resilience**: Replication for DR recovery purposes is common practice among Data Domain users. Data Domain was early to realize the importance of replication in its solution, and in IDC’s view, the strong replication capabilities are one of the solution’s key differentiators.

- **Measure return on investment**: Often companies employing a phased approach to technology implementation can overlook the actual impact on business costs and increases in efficiencies unless these are tracked throughout the implementation. Early identification of significant improvement can lead to further reviews of strategy and resulting technological advancement, culminating in often striking business benefits.

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