



CASE STUDY

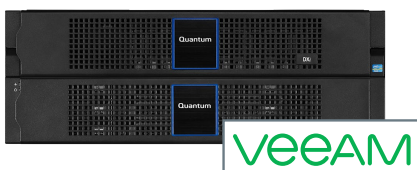
Quantum Selected Over Exagrid for Leading Dairy Co-op Veeam Environment

Faced with skyrocketing data growth and malware threats, a leading French dairy cooperative carried out a proof-of-concept test to choose the best deduplication appliance for their Veeam software. The results were clear—Quantum’s DXi® deduplication and replication was more than 15 times more effective than the competition, providing the right solution for all of the company’s offices.



FEATURED PRODUCTS

DXi-Series Deduplication and Veeam Backup & Replication



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Emmanuel Moncuit

System and Network Administrator, MLC



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SOLUTION OVERVIEW

- Veeam v9.5 Enterprise software with VDMS
- DXi4700 deduplication and replication appliances—three installed in primary data centers
- DXi V2000 virtual appliance installed in remote data center

KEY BENEFITS

- Close integration with Veeam and VDMS ensures streamlined management and protection against ransomware-style malware
- The DXi's high-performance in-line deduplication matches the backup and restore speed of competitors, while eliminating the need for a "landing zone" to save space
- Highly effective deduplication rates, from 3 times to more than 15 times better than competitive approaches, reduce the amount of disk needed and keep costs low
- Global deduplication reduces network bandwidth needed during replication by up to 281:1, allowing replication to provide DR protection for remote sites over a 3 MB/sec WAN
- DXi's concurrent replication shortens the period of risk between the completion of the backup and the creation of an off-site copy
- The DXi's virtual appliances provide support for smaller offices using a local VMware hypervisor, eliminating the need to install and maintain a separate physical appliance

Maîtres Laitiers du Cotentin (MLC) is a premier French dairy cooperative with 820 local farms. Each year, it collects and processes more than 400 million liters of milk, and distributes fresh milk, crème fraîche, butter and cheese to outlets throughout France, the EU and, more recently, to China with their new factory in Méautis.

MLC relies on robust data management and IT services to keep track of inventory, monitor production and manage all of its complex business operations, including payroll, HR and the service activities of the subsidiaries for distribution. "In some ways, Maîtres Laitiers du Cotentin today is just as much a data processing company as a dairy operation—the two parts of the business are fully intertwined and interdependent," explains Emmanuel Moncuit, the company's System and Network Administrator. "The cooperative has a big data center at the headquarters in Normandy split in two rooms, and two smaller data centers—one located in the south of France."

RELYING ON VIRTUALIZED SERVERS MEANS ADJUSTING DATA PROTECTION

Since 2010, approximately 98% of the company's 120+ servers have been virtualized, a strategy with major implications for backup and data protection. It meant that most of the backup duties were carried out by Veeam software, writing data directly to disk volumes, with only a couple of physical servers still protected by the company's legacy backup application.

Initially, the strategy worked; but as data volumes ballooned at roughly 25% each year, the systems began to fall behind. "We had so much data that we began to shorten our backup retention time, and providing secondary-site, DR protection was extremely difficult because we had too much data to replicate over our network," Moncuit remembers. "Backups started to fall behind, we sometimes skipped non-essential files and we had to keep managing tapes to provide off-site protection, even though our retention requirements were modest."

RANSOMWARE DANGER HELPS DRIVE UPGRADE

On top of those problems, the team members started to see ransomware attacks against their business. Their backups protected them, but they decided it was time to upgrade their system.

Even though they had been satisfied with Veeam, there were other vendors talking about new approaches to VMware backup and the MLC team looked carefully at offerings from Rubrik, but eventually decided they were too limited. "We wanted to be able to create a full backup whenever we wanted in order to have high confidence that we could recover cleanly and quickly, something that the ransomware attacks had forced us to do," Moncuit explains. "So, we decided to stay with Veeam."

PROOF-OF-CONCEPT TEST USED TO SELECT BEST DEDUPLICATION HARDWARE

The question of backup hardware was more complex, however. The team decided that the best approach was likely to be deduplication appliances. "We determined that using deduplication should let us store more data on less disk so we could have a longer retention period, and we wanted it to allow us to replicate backup sets between data centers," Moncuit explains. "Critical for us was finding a solution that worked with Veeam to embed its Veeam Data Mover Service (VDMS) within the appliance. That allows Veeam to write data to the appliance without using a NAS interface, so the storage is invisible to malware and safe from ransomware attacks."

The team only found two deduplication appliances certified by Veeam for that level of integration: Exagrid and Quantum DXi. "We heard lots of claims about what each would do, but decided that the only way for us to find out how the systems really worked with our data and networks was to set up a real-world test of the hardware. This also gave us a chance to use them with the new release of Veeam software, which also included support for physical servers," Moncuit recounts. Besides support for Veeam, the key points of comparison

were backup and restore performance, overall deduplication rates and support for replication between data centers.

TESTING SYSTEMS WITH DIFFERENT DEDUPLICATION APPROACHES

The project compared two different approaches to deduplicating the data sent by the Veeam software. Units from Exagrid use post-processing deduplication, in which the data is first written directly to the disk and held in reserve in its original size. This copy is retained for restores and used by the appliance's software to compare to old backups in order to deduplicate. The DXi appliances use an in-line approach. They deduplicate the data in real time during the backup, eliminating duplicate blocks on the fly, and only storing the reduced data set on disk.

The two appliances also use a different method to deduplicate data. Exagrid systems divide the stored backup files into what the company calls "zones", and then do a byte-level comparison between zones in the new and the old files. The DXi systems look at blocks in the active backup, comparing them with blocks already in the stored backup files using dynamically variable block sizes to maximize data reduction. Both systems also feature replication, in which appliances can send deduplicated data sets to other appliances to provide off-site storage. This feature, which was critical for MLC, was also tested for both.

IDENTICAL DATA SETS GIVE DRAMATICALLY DIFFERENT RESULTS

Each test included two units, which processed the same succession of backup and replication events. The Exagrid used a 42-TB unit in one section of one data center, and a second 20-TB unit in a different area, connected over the company LAN to test replication. The DXi system set up one 11-TB physical appliance in the first data center and, to test replication, installed a virtual appliance in a second, remote data center, connected to the first by a WAN. This second virtual unit was installed as a VM using the data center's local VMware hypervisor

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ABOUT MAÎTRES LAITIERS DU COTENTIN

Located in France, the parent company of the group Maîtres Laitiers du Cotentin is a premium French dairy cooperative with a turnover 320 million EUROS, gathering more than 1,200 members disseminated in 800 separate local farms, which collects, processes and distributes more than 400 million liters of milk a year. A leading ultra-fresh milk supplier to the private-label market and food services, the company creates a wide range of products including its specialties, crème fraîche and Normandy cream. Launched on January 1, 2016, "Campagne de France" is the new brand owner by the cooperative's producers, who defends the French Milk sector for production and transformation. After the EU, the cooperative MLC is focusing on international growth, in particular in China through a new factory in Méautis that produces baby milk.

For 30 years, the MLC group has been developing its distribution system "France Frais", which represents hundreds of companies across the nation. The group expands its industrial activity by acquiring the companies REO (camembert from raw milk) and YEO (organic yogurt). The group stands at 1.8 billion EUR (approx. 2.1 billion USD) with 4,000+ employees.

and NAS storage, but it presents itself to the Veeam backup application as a separate appliance. To ensure fairness, both installations had help both from the vendors and from experienced integrators. “We really wanted to be sure that we did everything we could to have both systems following all of the recommended best practices,” Moncuit says.

SIMILAR BACKUP AND RESTORE SPEEDS, DRAMATICALLY DIFFERENT DEDUPLICATION

The tests revealed several advantages that made the DXi system the clear winner. Both systems integrated well with the Veeam features that MLC wanted, and the overall backup and restore performance of all units was roughly the same—essentially similar to the speed that the Veeam application sees in its native mode writing data to disk. “The larger Exagrid units store one whole backup in native mode to make reads and writes faster, so we were surprised to see that the performance of the much smaller DXis was just as good,” Moncuit says.

But the DXi deduplication results were much more effective, providing striking benefits, including size of units required and replication effectiveness.

Moncuit explains, “Because the DXi does all of its work in-line, the systems are much smaller than the Exagrid systems—we needed a 48-TB Exagrid unit for the main location while only 11 TB for the DXi, and far fewer spindles. For our remote site, the DXi required no physical appliance at all—we just used the local VMware environment and built the virtual appliance on it.”

For deduplication, the DXis provided over 300% better results than Exagrid or the backup software’s own deduplication for the primary backup jobs. That advantage was greatly magnified when it came to replication because the DXi system leveraged its global deduplication. That feature compares data sets on different appliances before any blocks are transmitted, eliminating the need to send data that already exists at the target location over the network. The DXi replication also completed much faster because it is carried out concurrently with the backup.

“In our tests, the DXi replication was finished just a few minutes after the backup was finished, so our period of risk—the gap between when a backup is done and a copy is safely off site—was incredibly short,” Moncuit adds. “The other approach was much slower—the backup had to be completely finished before any replication started.”

MORE THAN TEN TIMES AS EFFECTIVE, WITHOUT REQUIRING A PHYSICAL APPLIANCE

When both units replicated new data from a 224-GB backup at one location to an appliance at the other, the Exagrid system sent 21.7 GB of data—a 10:1 reduction—while the DXi’s virtual appliance sent only 1.4 GB—a 159:1 deduplication rate. “The difference between the units—more than order of magnitude—was amazing to us, and it made our decision in favor of the DXi system an easy one,” Moncuit explains. “We also liked the DXi management better. We could see the replication progress all through the operation, and we could

pause it temporarily and resume it later if we wanted to do something like reserve network bandwidth for some other job. The other product had almost no control or visibility into what was happening.”

PRODUCTION ENVIRONMENT RESULTS EVEN BETTER THAN THE TESTS

Based on the testing, the team installed the DXi units in the production environment and was pleased to discover that the results in the real environment were even better than they had hoped for. “In our trial, the DXi was as fast as the Exagrid units, much smaller, and gave us over ten times better deduplication results,” Moncuit says, “but production results were even better than the tests. Our updated servers and new DXis were almost twice as fast—up to 600 MB/sec for some jobs. We saw dedupe rates of up to 230:1 for a second full backup and an amazing 281:1 for replication. That means that our slow, 3 MB/sec link connection can easily handle replication tasks between offices, something that other vendors told us was impossible.

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ABOUT QUANTUM

Quantum is a leading expert in scale-out tiered storage, archive, and data protection, providing solutions for capturing, sharing, and preserving digital assets over the entire data lifecycle. From small businesses to major enterprises, more than 100,000 customers have trusted Quantum to address their most demanding data workflow challenges. Quantum’s end-to-end, tiered storage foundation enables customers to maximize the value of their data by making it accessible whenever and wherever needed, retaining it indefinitely and reducing total cost and complexity. See how at www.quantum.com/customerstories.