

## CASE STUDY

# Affordable Long-Term Backup Repository with Ultrastar® Data60 Storage Platform and Veeam® Backup Software



## Challenge

The existing 24/36-bay storage servers did not provide the right capacity for backup purposes and created logistical challenges for the backup/restore function

## Solution

A backup storage solution based on Western Digital's Ultrastar Data60 storage platform and Veeam's Backup & Replication software

## Key Results

- Significantly reduced IT maintenance
- Higher capacity (up to 1.2PB)
- High reliability components and enclosure
- Best cost/performance ratio when compared to competing solutions
- Repository for 6 years of daily backups
- Over 1250TB saved on 378TB of physical storage

## Company Profile

GreenPower, headquartered in the Netherlands and operating under the Dr. Hittich Brand in Kerkrade, is a wholesale organization supplying nutritional supplements made from 100% natural active substances that are free from synthetic chemicals. For its mission-critical IT applications it was looking for an efficient storage solution that could support an infrastructure with an availability well beyond 99%.

## Logistical Challenge to Backup/Restore

GreenPower was using a 24/36-bay storage server from an established OEM server vendor, containing up to 108TB of HDD storage for backup purposes for their data warehouse application. However, this solution did not provide enough capacity for the daily backup requirements of the company. Additionally, the IT department faced a logistical challenge every time a disk was full and needed to be replaced by an empty disk. The full disks that stored the backup data needed to be removed from their cage, labeled properly, and stored together with the correct RAID controller. This added a lot of unnecessary work to the IT team, and caused a high probability for errors when a specific restore was required. Probable causes of failure included wrong labeling of drives, wrong RAID controller firmware, or simple data retention issues of non-powered HDDs.

## Affordable Backup Repository

GreenPower was looking for an affordable long-term backup solution that provided large capacity with unlimited retention as they regularly needed to restore backups from specific days/times. They looked at large capacity server enclosures from multiple OEM vendors, but found them to be too expensive and it still wouldn't solve their logistical problems of swapping out the full drives with empty drives.

They eventually settled on a solution based on Western Digital's Ultrastar® Data60 storage platform and Veeam® Backup & Replication™ 9.5 software. They connected their commodity x86 servers to two Ultrastar Data60 storage platforms populated with enterprise-class SAS HDDs and configured them as multiple RAID sets managed by Windows® Storage Spaces. Thin virtual disks were created and configured for Microsoft® dedupe. Multiple thin disks were needed to allow for more than 64TB, a limitation of the dedupe software.

The Veeam backup software was configured to make two independent backups to each Ultrastar Data60 storage platform, splitting full backups from incrementals per volume to allow for different dedupe schedules. Once the storage platforms were completely full, they would be disconnected from the servers and replaced with new Ultrastar Data60 storage platforms. The disconnected Ultrastar Data60 storage platforms would be used

<sup>1</sup>One MB is equal to one million bytes, one GB is equal to one billion bytes, one TB equals one trillion bytes, and one petabyte (PB) is equal to 1,000 TB. when referring to storage capacity. Accessible capacity will vary from the stated capacity due to formatting and partitioning of the hard drives, the operating system and other factors.

"Moving to Western Digital's Ultrastar Data60 storage platform was an easy choice, as it provided us with reduced logistical overhead, higher storage capacity and lower cost than alternative solutions".

Guido Meijers  
System Engineer at GreenPower

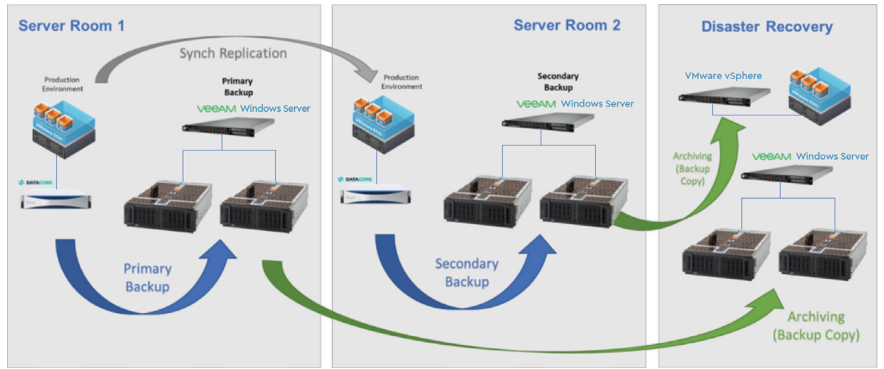
**Production Environment**

Servers with VMware® ESX® 6.5  
IntelliFlash™ servers with DataCore Software

**Backup Environment**

- 2x Servers with Veeam Backup & Replication software
- 2x Ultrastar Data60 storage platforms

for future restores, providing a repository for 6 years of daily backups. Green Power reported that the Microsoft dedupe function saved 1250TB of storage on 378TB of physical storage after parity (4x striped RAID 6).



**High Reliability Components and Enclosure**

GreenPower stated that they viewed Western Digital's enterprise-class SAS HDDs as the most reliable backup drives in the industry. The customer looked at using the drives with another manufacturer's JBOD enclosure, but after comparing the warranty terms, ease of operation of the Ultrastar Data60 storage platform and associated costs, they decided to go with a fully integrated Western Digital solution. The 5-year limited warranty on both the drives and the Ultrastar Data60 enclosure made this solution the most attractive from a cost/performance perspective.

"Our IT team was wasting a lot of time on swapping out full backup drives for empty drives on our existing storage servers" said Guido Meijers, System Engineer at GreenPower. "Moving to Western Digital's Ultrastar Data60 storage platform was an easy choice, as it provided us with reduced logistical overhead, higher storage capacity and lower cost than alternative solutions".

**Ease of Integration and Maintenance**

According to GreenPower's IT team, the Ultrastar Data60 storage platform itself requires hardly any attention following the physical installation and is set up like regular DAS drives. Planning the Veeam backup implementation required some attention, but once set up, the team only needed to watch the remaining available storage capacity in Windows Storage Spaces as daily backups reduced the available storage capacity. Additionally, the IT team enjoyed the act of simply disconnecting the whole Ultrastar Data60 storage platform from the servers once the drives in the backup repository were filled.

**Tailored Capacity at the Right Performance**

A backup repository that is configured with 60 HDDs seems to be a good sweet spot for the Veeam and Microsoft dedupe solution. Both backups and restore are quick, regularly hitting speeds over 1GB/s and the dedupe functionality saved over 1250TB of storage on 378TB of physical storage. In the old configurations, with the HDDs configured inside the storage servers, GreenPower often ran into the issue that dedupe hadn't yet completed its run before new backups were already being made which caused things to slow down significantly. GreenPower has not encountered these limitations with the new solution.

Guido Meijers  
System Engineer at Greenpower  
4mo

@Western Digital brand High capacity Backup JBOD Veeam Software  
Scale-out Backup Repositories Microsoft Dedupe better together :)  
Over 1250TB saved on 378TB of physical storage after parity (4x striped Raid 6) and still 59TB free :)

```
PS C:\WINDOWS\system32> get-dedupstatus
```

| FreeSpace | SavedSpace | OptimizedFiles | InPolicyFiles | Volume |
|-----------|------------|----------------|---------------|--------|
| 45.64 TB  | 45.79 TB   | 15             | 15            | S:     |
| 47.21 TB  | 47.56 TB   | 640            | 640           | O:     |
| 42.49 TB  | 24.5 TB    | 488            | 489           | Q:     |
| 44.65 TB  | 94.86 TB   | 8220           | 8219          | V:     |
| 27.57 TB  | 161.22 TB  | 9040           | 9040          | R:     |
| 37.53 TB  | 98.87 TB   | 9946           | 9946          | P:     |
| 60.57 TB  | 8.65 TB    | 63             | 63            | U:     |
| 27.41 TB  | 111.82 TB  | 317            | 317           | T:     |
| 47.68 TB  | 10.23 TB   | 135            | 135           | D:     |
| 12.82 TB  | 36.55 TB   | 483            | 483           | G:     |
| 52.84 TB  | 5.76 TB    | 107            | 107           | E:     |
| 53.89 TB  | 16.43 TB   | 84             | 84            | F:     |
| 48.87 TB  | 56.36 TB   | 10235          | 10235         | J:     |
| 55.41 TB  | 45.97 TB   | 41             | 43            | M:     |
| 49.68 TB  | 20.91 TB   | 8              | 8             | Y:     |
| 52.17 TB  | 24.2 TB    | 261            | 261           | X:     |
| 52.22 TB  | 51.65 TB   | 926            | 926           | N:     |
| 34.95 TB  | 20.86 TB   | 13             | 13            | W:     |
| 43.6 TB   | 63.14 TB   | 131            | 133           | Z:     |
| 56.86 TB  | 44.36 TB   | 432            | 432           | H:     |
| 57.95 TB  | 48.07 TB   | 216            | 216           | K:     |

2 Likes  
Like Comment Share



5601 Great Oaks Parkway  
San Jose, CA 95119, USA  
www.westerndigital.com

© 2018-22 Western Digital Corporation or its affiliates. All rights reserved. Revised 2022. Western Digital, the Western Digital logo, IntelliFlash, and Ultrastar are registered trademarks or trademarks of Western Digital Corporation or its affiliates in the US and/or other countries. Microsoft and Windows Server are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries. Veeam, the Veeam logo and Veeam Backup & Replication are trademarks of Veeam Software. VMware and VMware ESX are registered trademarks or trademarks of VMware, Inc. in the United States and/or other jurisdictions. DataCore is a trademark or registered trademark of DataCore Software Corporation. All other marks are the property of their respective owners.