Quantum

CASE STUDY

German District Government Modernizes Backup with Quantum DXi Appliances and Veeam Software

Spiraling data growth, an increase in server virtualization, and the evolution of backup applications left the District of Lippe struggling to protect its critical data and provide effective file restores for its end users. The right solution was a combination of DXi® deduplication appliances and Veeam backup software.

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FEATURED PRODUCTS

DXi-Series Deduplication and Veeam Backup Software

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Tim Veers
Head of the IT department, Lippe

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SOLUTION OVERVIEW

- DXi6700 and DXi6800 series deduplication appliances
- Scalar® i500 tape library
- Veeam backup software

KEY BENEFITS

- Increased performance means that backups complete during the allotted window
- High deduplication rates—up to 29 to 1—allow retention of backup data on disk for fast, easy restores
- DXi support for VTL and CIFS interfaces allows appliances to easily support multiple backup applications
- High bandwidth reduction—up to 136 to 1—allows replication of large backup sets to be completed in only 30 minutes
- Replication-based DR protection provides automated protection across multiple sites, along with fast restores
- Use of tape as third level of protection provides low-cost, long-term retention

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The District of Lippe administers a wide range of important services for 16 separate urban centers and a rural population in the German State of North Rhine-Westphalia. Since the District, comparable to a county in the United States, is the primary governmental entity in its region, the datasets it generates and stores form a critical asset.

The IT infrastructure to support the District has undergone major changes over the last decade in response to dramatically increased data volumes, changes in the kinds of services supported, and changes in technology. Today the server environment includes 15 physical servers and more than 180 Virtual Machines (VMs), and its data is used by over 1,500 separate end-user devices spread across more than 40 locations. As the system has evolved, data protection has been a constant challenge.

PROBLEM ONE: SOFTWARE-BASED DEDUPLICATION AND TWO-STEP BACKUP UNWORKABLE

Until 2012, the Lippe IT department used standard backup software for Windows systems to deduplicate data, write it to disk, and then copy it to tape as a background process for DR protection. But as data grew, the system became unworkable.

"The backup hardware was never available during the day because the backup server wrote data to the disk at night and to tape during the day," remembers Tim Veers, head of the Lippe IT department. "So restoring data was complex and time consuming. Several times a week, we had to restore files from the previous day that were quite likely already on tape. And if a file was needed from a larger VM, we would have to load 1-1.5TB to a local disk before being able to extract the respective file. We spent half of our time dealing with restores."

DXi APPLIANCES OFFER A BETTER SOLUTION

When the software's deduplication functionality failed for the second time, Veers and his team decided to investigate alternative disk backup solutions. Working with system integrator PMCS in Bad Camberg, the team found the right solution: DXi deduplication appliances from Quantum, with the right combination of scalability, price/performance, and deduplication effectiveness.

The IT team installed two DXi systems, one in the central district office and a second smaller appliance in a remote service training center. In the new configuration, backups were written to the first DXi by the legacy backup software every night, and every day the backup set was replicated to the second appliance to provide off-site protection. Replication was managed by the existing backup application, data in both locations was directly visible to the IT staff, and most restores became simple since several days of backups were directly available on disk.

PROBLEM TWO: LEGACY BACKUP APPLICATION CAN'T KEEP UP WITH VMs

In 2013, the IT department was unhappy when a new version of their legacy backup app seemed to take a step backward, especially when it came to handling VMs.

"Suddenly backups no longer ran smoothly. Some jobs were carried out only partially, some did not start at all," Veers recalls.

After testing a variety of solutions, Lippe's IT department decided in favor of new backup software by Veeam, and the outcome was very positive.

"Suddenly backups were performed without any complications, obstacles, or errors. It was such a relief for our team."

Unfortunately, at the time Veeam only supported virtual machines, not physical servers. So the team continued to use their legacy application for backing up physical servers. The constants in the equation were the DXis, which worked equally well with both applications.

VEEAM AND DXi SOLVE PROBLEM FOR BOTH VMs AND PHYSICAL SERVERS

"We wrote backups for physical servers to one share of the DXi using a virtual tape library interface and our old software, and Veeam wrote VM backups to a CIFS share in the same DXi. We replicated all the data to the second unit for DR protection. That solution worked until we discovered Veeam Endpoint Backup, a new version of their product that can protect physical servers. So now we use Veeam and DXi for backing up everything."

The Veeam and Quantum DXi solution worked perfectly together, the replication continued to provide DR protection, and the Veeam software both shortened backup windows and accelerated recovery. And the DXi appliances provide much faster and more efficient deduplication and replication.

"The combination of DXi deduplication appliances and Veeam is just ideal for us. Backup processes run reliably, and Veeam ensures that the VM servers are backed up every day, as required. We feel much more secure, one reason being that we now have a second copy of our data in Lemgo," Veers explains.

PROBLEM THREE: DATA VOLUMES OUTPACE BACKUP...AGAIN

In 2014, the district was faced with yet another challenge. The District of Lippe added administration of public employment agencies to its list of responsibilities, and that, coupled with new, higher resolution images associated with mapping and geospatial images, suddenly created a crisis as data volumes nearly doubled overnight.

"The time after working hours was no longer enough to complete a full backup by the beginning of the next business day," says Veers.

The solution was adding another DXi, a new larger unit, and installing it in the same data center as one of the original units. The new unit features higher capacity, faster throughput, and expanded scalability. It also provides a local resource that can provide fast restores for even very large file sets.

ABOUT THE DISTRICT OF LIPPE

The District of Lippe, with a heritage that dates back to the Holy Roman Empire, is an administrative district responsible for a wide range of services for ten cities, six municipalities and a substantial rural population in the State of North Rhine-Westphalia. The District, comparable to a county in the United States, is the primary governmental unit for its region, providing everything from election oversight and road maintenance to management of social services, youth programs, and health care.

A NEW, LARGER DXi RESOLVES THE PROBLEM

In the new system, backups are written each night to the new DXi, and the job is complete by 1 AM, well within the backup window. Each morning, the backup is replicated to the other DXi in the main data center and, simultaneously, to the remote site to provide emergency DR protection. Servers located at the secondary site are also backed up locally and copies are replicated to the main data center, so all the data has multiple copies in different sites every day.

TAPE PROVIDES LONG-TERM RETENTION

In the District of Lippe's data protection strategy, tape, in the form of a Scalar i500 tape library, is used to provide long-term retention. Once a week, a full backup is written to the library's LTO media, which are vaulted in a safe location.

"A tape copy if very important when you consider what could happen if software corrupts data. It's possible that bad data would be backed up and replicated until all the sites would be affected. The tape gives us another medium to fall back on in a worst-case scenario. Our goal is to be covered 100 percent at all times," Veers explains.

MULTIPLE TIERS OF PROTECTION, SMOOTH OPERATION, FAST RESTORES

Veers is delighted by the interaction between the DXi appliances and the Veeam software:

"The systems run soundly, we get good backup rates, and we can retain more backup sets thanks to the very high deduplication rates."

The DXi's robust replication also makes daily operations much easier.

"We have tried software-based replication, along with software-based deduplication, but it simply didn't work very well. Replication was so slow that it could days to complete. With the DXi we see deduplication rates of 29 to 1, and even higher bandwidth savings, up to 136 to 1, so the entire replication process usually takes no more than 30 minutes.

The streamlined backup and restore operation has benefits for the whole organization. Now that we don't spend half our time restoring files, we have more time to work with other employees, and we provide them with much better technical support," Veers reports.

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