Storage high availability for internet service provider

VDB Automatisering counts on active-active cluster setup with Open-E DSS V7

Challenges

VDB Automatisering is an ICT company delivering products and services to small and medium businesses in the Netherlands. A growing part of the company's business is providing customers with hosted solutions from a data center where racks equipped with their own servers are rented.

The hosted solutions consist of customer-specific terminal servers and – if needed – application servers. All customers share the exchange infrastructure and file storage. VDB Automatisering's philosophy is to avoid any single point of failure in the central infrastructure.

For the storage, a single file server with file shares for company data, user data and profiles is used. User State Virtualization was implemented so all user data can be stored outside the terminal servers. In case of an emergency a terminal server can be restored from a backup while customers can continue working without any interruption.

The storage server was the only part of the infrastructure which was not redundant. This is why VDB Automatisering was looking for a suitable solution to guarantee redundancy. Microsoft offered DFS which is more a branch office solution. Most SAN solutions were based on hardware with built-in redundancy. Both of them were not a solution to the problem, as it is a known fact that most service outages are caused by changes in the system, i. e. software updates. To implement a truly redundant SAN solution the company required two devices, which was too expensive overall.

When the company took Open-E DSS V7 into consideration they decided to first build a test environment with an active-active cluster behind a Microsoft Windows File Server Cluster.
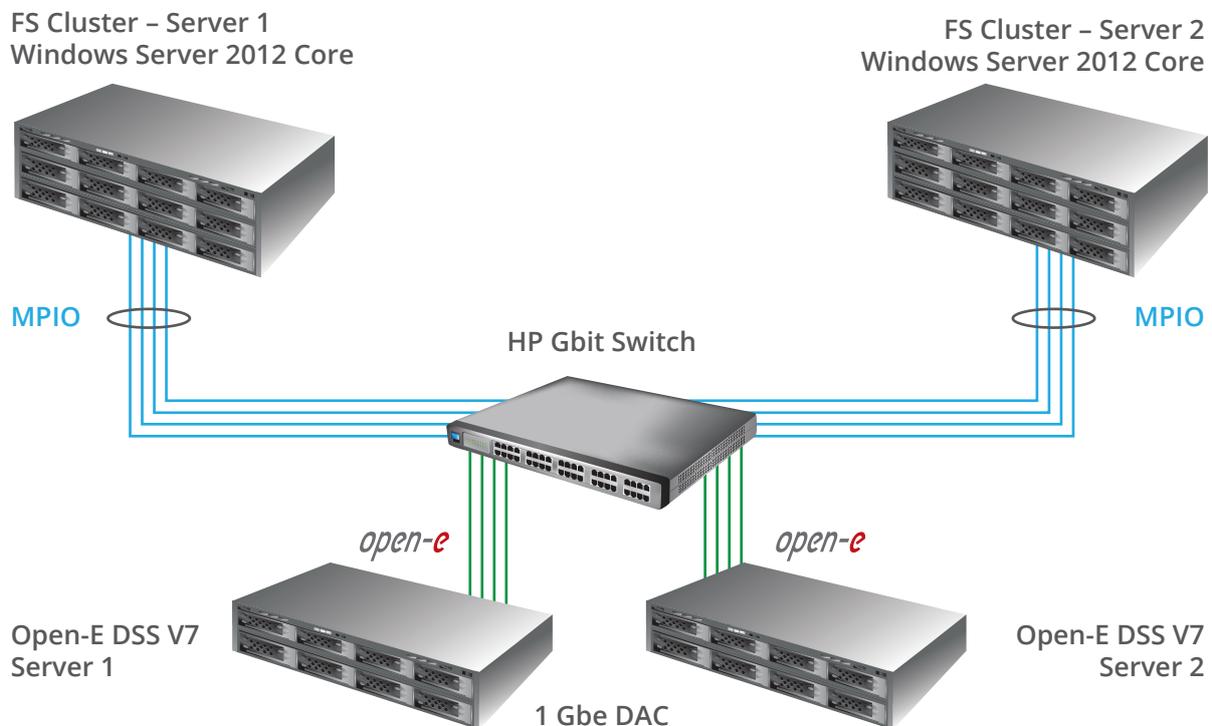
Solution

For the Open-E cluster VDB Automatisering used two HP DL360 1U servers with 1TB SAS (7200rpm) disks. The servers were connected to each other with a 10Gb direct interface, and to the file servers with multiple 1Gb connections using MPIO. The setup was tested and showed almost the same performance as local SAS disks, at the same time delivering a failover mechanism transparent to the file server cluster in front of it.

While the Open-E cluster delivered true redundancy for the iSCSI LUNs, the shares were not protected. This is why a 2-server Windows Failover Cluster with the file services role enabled in the cluster was implemented. Because of its redundancy the company was able to use rather simple servers as there was no need for big CPUs or lots of memory.

The most important part of all four servers were the NICs. Where an ideal configuration would consist of 10Gb NICs (multiple per server) VDB Automatisering decided for traditional 2-port and 4-port 1Gb NICs from HP and Intel, so there would be no need for multiple – and thus expensive – 10Gb switches. Connections between the Open-E cluster and the Windows cluster consisted of four 1Gb connections bundled with MPIO. An additional performance increase of 70–80% was reached when using high quality network cables (CAT 6A STP) versus low-cost CAT5e UTP.

Hardware Setup

The hosted solution is based on Microsoft Windows Server 2012 Hyper-V servers, managed by Microsoft System Center Virtual Machine Manager and backed up by Data Protection Manager. The company used Hyper-V replication for all virtual machines to an external location and Microsoft's DFS to replicate the shares on the storage to this external location as well. Redundant switches were not implemented in the beginning due to high MTBF of units and lack of space in the racks. There were always spare units at hand to quickly recover from a switch failure.

FS Cluster – Server 1
Windows Server 2012 Core

FS Cluster – Server 2
Windows Server 2012 Core

MPIO

MPIO

HP Gbit Switch

open-e

open-e

Open-E DSS V7
Server 1

Open-E DSS V7
Server 2

1 Gbe DAC

Benefits

Ad van den Broek, Owner at VDB Automatisering:

"We are very satisfied with this solution because of the great performance and stability, as well as the limited costs. Another surprising fact was that this setup is also very resilient when changes are necessary. We can install new software versions and add disks to the storage cluster without downtime for the end-user."

About VDB Automatisering

Since 1994, VDB Automatisering delivers automation and hosting solutions to SMB customers. As an ICT company, VDB Automatisering provides the full portfolio of services to their customers in the Netherlands: from implementing complete workstations to administration and hosting. This also includes prevention systems, automatic system and backup control as well as technical support. For more information visit **www.vdb.info**

About Open-E

Open-E is a pioneering leader and developer of IP-based storage management software. The flagship product Open-E DSS V7 is a robust, award-winning enterprise storage application which offers excellent compatibility with industry standards and is the easiest to use and manage. Additionally, it is one of the most stable solutions on the market and an undisputed price performance leader. Open-E counts for over 27,000 installations worldwide and has received numerous industry awards and recognition. Thanks to its reputation, experience and business reliability, Open-E has become the technology partner of choice for industry-leading IT companies. For further information about Open-E, its products and partners, visit **www.open-e.com**