

Since 1994 the activities of Handelshof-Group have been directed by Handelshof-Management GmbH with head offices in Köln-Porz, on the right bank of the river Rhine. All the operational areas of the group, ranging from marketing and purchasing to IT are located here, as well as the registered office of the company.

Due to the increasing demands on the chain's central IT, a consolidation of the existing server environment became necessary. In order to achieve this, the virtualization software Xen was installed on redundant high-performance servers. Thus, 20 virtual machines are able to perform many different services for more than 1000 users, ranging from the central Web-Server station to the handling of documents.

In the course of this reorganization it became necessary to keep the storage - to which all these virtual machines are to have access - redundant and highly available. At the same time the performance is to be such, that every individual service is available at its full capacity.

Here, the storage manufacturer EUROstor was commissioned to offer and to install a solution.

## Solution:

A storage system located on two different computer sites is to guarantee that the data are located in the two different fire protection areas. Suitable premises with a network connection are already available. In conversations with the customer a SAN on iSCSI was selected as the ideal infrastructure.

Two ES-8700 iSCSI RAID systems each per site with some 4 TB disk capacity each will be pooled to clusters in pairs – one pair of clusters for the production facilities and another one for test installations. The clusters operate with a virtual IP address, accessible for the individual virtualization servers. Since the data are replicated synchronously between the two cluster nodes, an automatic failover to the second node is possible, without timeout or even loss of data, in case the master node should not be available for any reason. Both the systems are equipped with high-performance SAS hard disks and with Enterprise SATA hard disks. Thus two storage pools are available, one of them for high I/O-demand (e.g. for databases), and one of them with a high capacity for the storage of data or for fileserver services.

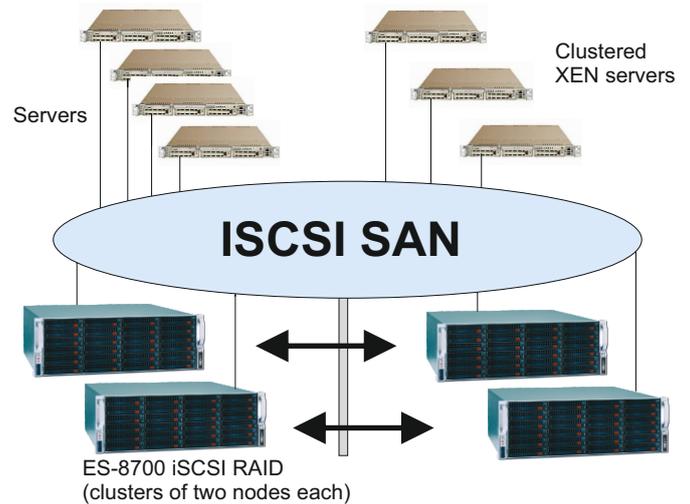
By means of the Open-E DSS V6 software used in the systems, it is possible to create volumes on the systems whenever required, which may even be enlarged later; moreover, snapshots for data backup may be generated.

The iSCSI cluster function with automatic failover is also provided by the Open-E DSS V6 software.



### ES-8700 iSCSI RAID Cluster:

- Storage systems with Open-E DSS V6, up to 24 hard disks on 4 HE, externally expandable via SAS port (up to 122 SAS and SATA hard disks)
- Hardware RAID controller with hardware-supported RAID 6 function, RAID set upgrading on the fly.
- Six iSCSI 1 Gbit ports each, which may be used in any combination for replication and host services, virtual IP address for iSCSI Cluster
- Time-controlled snapshots, volume-expansion as required
- Support of NAS volumes (CIFS and NFS, ADS), even with snapshots



**ES-8700 iSCSI Cluster:**  
Data availability without interruption over two sites.

## Customer Statement:

"The aim of the project was to increase the operational security of the central Handelshof systems while simultaneously consolidating and increasing flexibility of the server environment. The EUROstor Storage Systems ES-8700 with Open-E DSS V6 represent a cost-saving but stable solution that meets our high requirements", says Dr. (RUS) Torsten Fimmel, Manager IT of Handelshof Management GmbH.

Bernd Laumen, Area Manager Infrastructure says: "The system was installed by a EUROstor technician in two days without any problems. Due to conceptual specifications communicated by Handelshof, it was possible to prepare the systems even before delivery in such a way that only final adjustments had to be made, e.g. as to the network configuration. After the installation we ran extensive disaster-tests, which the system passed without any problems."

