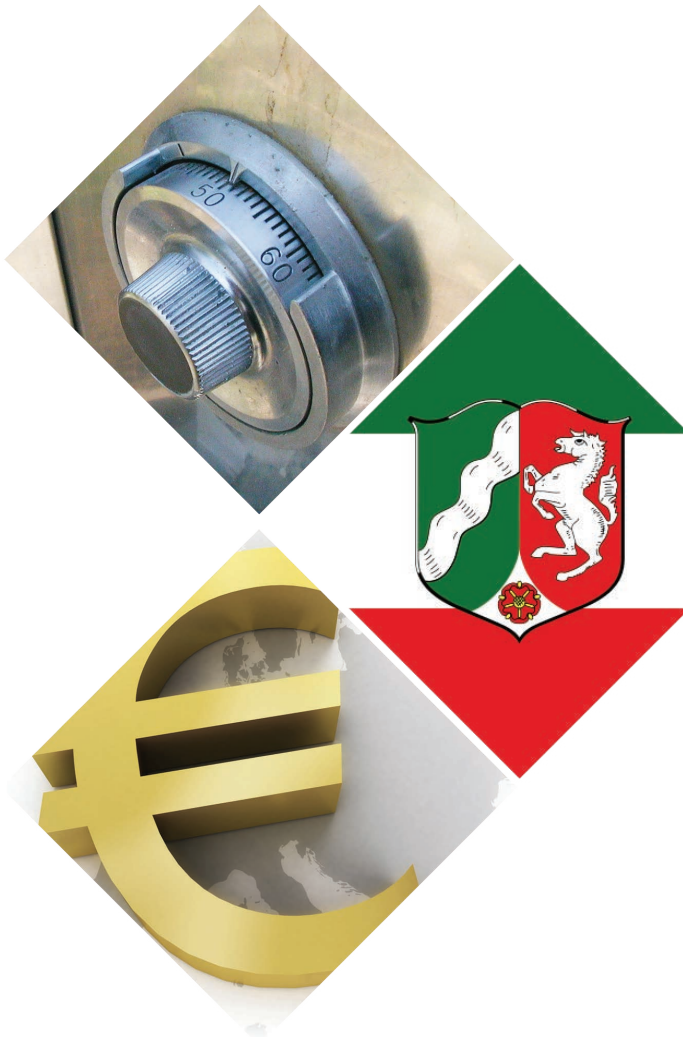# RZF is the German acronym for "Computing Center for the Tax Authorities of the State of North Rhine-Westphalia"

As a state-run institution, RZF acts as a service provider for the Ministry of Finance.
It works in conjunction with the regional tax offices, which in turn manage local tax authorities.

open-e

The organization

The computing center currently serves 137 local tax offices, two regional tax offices, and three educational institutes of the state's financial administration organization. As a result, the 600 employees of the center ultimately serve 34,000 others around the state. In order to keep up with this volume and simultaneously successfully launch new technologies and solutions, the computing center must select reliable and professional partners when awarding contracts.
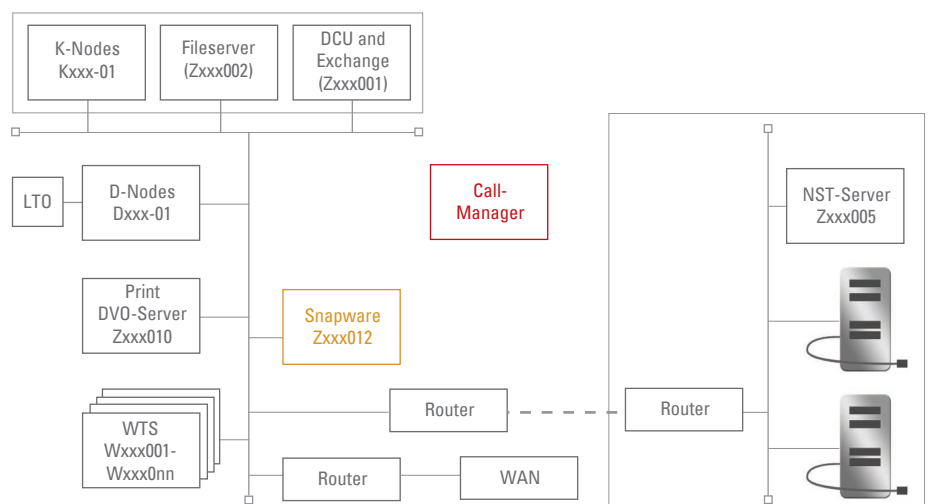
RZF in financial administration

approx. 300 budgeting, revenues, and accounting clients (state authorities)

Fin Min

25 special offices, 10 offices for Tax Law, 15 BP offices

3 schools

109 fixing offices

2 Ministries of Finance

Regional Authority for Human Resource Management

RZF

Area of responsibility:
The computing center for tax authorities in the German state of North Rhine-Westphalia supports a variety of tax offices and associated public institutions.

Before…

The computing center is responsible not only for operations at the state's 200 divisions, but also for backing up and archiving data at each of the field offices. In the past, all data was backed up decentrally via the IT system at each individual office, using local linear tape-open (LTO) drives. But the volume of data, which now reaches more than 500 GB per backup, exceeded the systems' capabilities and took so much time that the window of time available for backing up data was no longer adequate.

Slow connection between assessing tax offices and branches

K-Nodes Kxxx-01

Fileserver (Zxxx002)

DCU and Exchange (Zxxx001)

LTO

D-Nodes Dxxx-01

Call-Manager

NST-Server Zxxx005

Print DVO-Server Zxxx010

Snapware Zxxx012

WTS Wxxx001-Wxxx0nn

Router

Router

Router

WAN

Connecting the field offices: Not all divisions have broadband connections to the central computing center.

After…

The computing center in Duesseldorf was faced with the challenge of launching a higher performance solution within a short period of time without interrupting continuous operation, including having a reliable way to back-up data. They had several alternatives from which to choose: Among the possibilities discussed were new tape-based technologies and centralized or decentralized disk tape libraries (DTLs). Several solutions were included in a final round of elimination. Several well-known providers like IBM, HP, and NetApp proposed DTL-based decentralized back-up solutions. Very high performance solutions from other manufacturers also capable of meeting the computing center's requirements were also considered. These solutions and the companies offering them proved to be very flexible and adaptable. Another interesting aspect of the project was the computing center's willingness to use not only a large service provider, but also work together with the manufacturer of the storage software solution (Open-E) as well as a hardware vendor (Tarox) and a system vendor for project and general management (BASIS). The result was an interesting and fruitful example of teamwork that enabled efficient implementation at each of the divisions as well as the ability to stay true to the demanding timeline without any difficulties. From early August until mid-September, competing manufacturers subjected their solutions to evaluation runs where each of the products ran through a series of tests and was compared to the requirements contained in the call for bids. Here as well, partner cooperation and the high performance of the solution proved to be valuable strengths, ultimately leading RZF to choose BASIS as the general contractor with its partners Open-E and Tarox. Following a public call for bids and internal testing of the systems according to the state's budget requirements, the Open-E solution was selected in conjunction with a storage server from Intel. The first expansion stage provided 6 TB of storage. Twelve SATA hard drives in a RAID-5 array with hot spares and parity were utilized and can be expanded at any time. At the highest expansion level, the systems can handle up to 1,764 TB (nearly 1.8 PB), simultaneously giving the client an ideal amount of scalability and tremendous potential for growth.

The systems enable parallel access to the systems as they are backed up, thereby increasing performance and giving the computing center access to perform archiving tasks while back-up operations are in process. In order to fully meet all of the requirements contained in the call for bids, system supplier BASIS had to make a few changes to the Open-E storage operating system.

For example, they expanded the monitoring and alarm functions (Snmp support, etc.) and integrated the licensing model required by RZF. As a result of its cooperation with Open-E, BASIS now has an OEM solution known as "Power Storage Server," which it offers specifically to public institutions. The solution clearly demonstrates the performance and flexibility of Open-E.

Implementation

One of the major challenges during implementation was to integrate individual storage components, which had to be automatically integrated into the computing center's inventory. To accomplish this, the relevant IP and Mac addresses were collected and forwarded to the partners who entered this and any other required information into the systems and then made sure that each component was delivered and installed at the right divisions. At the same time, the computing center took the steps necessary for the new devices and related applications to receive the access they need. Complete roll-out of nearly 150 systems demanded a highly-detailed and tactically-refined strategy from the project managers but was finished in just five weeks. From November 1 to December 1, 2007, three installation teams set up and brought into operation approximately ten systems each week in the nearly 200 divisions. "After a few initial challenges, the individual partners worked together so well that they were able to bring the systems into operation in just a few weeks," said Andreas Hedderich. "Everyone involved in the project handled their responsibilities in such a professional way that we experienced no delays from the time the configuration files were generated at our location until the installation in the divisions."

Operation

In the second week of December, the system was converted to routine operation. In subsequent weeks, it was further optimized and adjusted by technicians from the partner companies. OpenView StorageData Protector from HP integrates very well into the solution and is used to back up data on the DTLs. At this time, the data are still backed up for archiving purposes on decentralized LTOs behind the DTLs, but this will be discontinued over the course of this year.

The future

Before the end of this year, the decentralized LTOs will be replaced by the existing Centrix Store VTL (Virtual Tape Library) solution from Fujitsu Siemens, at which time data from the field offices will be centrally archived in the computing center. This is very easy thanks to asynchronous replication of the data on the computing center's backup server.

Side note: New back-up approach (Backup2Disc)
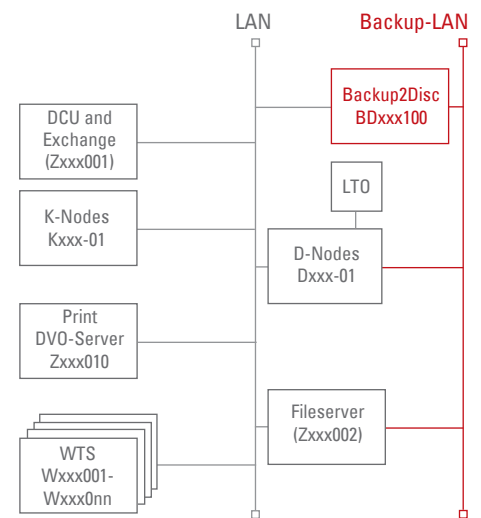
The new approach to back-up: Soon all of the field offices will be connected to the central computing center by way of a backup LAN, thereby giving them a high-performance means of backing up their data.

Summary

After approximately three months of regular operation, the client has stated that the solution meets all of its requirements. Initial concerns about using solutions that originate from several different vendors have been completely discredited. "This project has once again shown that public agencies and private enterprises can work together very efficiently and that some people's reluctance to include smaller partners has long been outdated and misguided," according to Hedderich. In fact, considering that the computing center also had to convert the servers from HP-UX to Linux and convert the entire system to Windows, intensive support from the partners was what made it possible to bring the project to such a rapid and successful conclusion.

Open-E DSS

All Open-E products are based on an operating system that is completely pre-installed and configured on a USB DOM (Disk On Module). This module is then simply inserted into the server system. Pre-installation of the operating system on the USB DOM enables companies to build up their storage infrastructure very quickly and easily. Downtimes are also reduced considerably, and the storage installations are highly secure thanks to the encapsulated operating system. The operating system is doubled, similar to dual bios, where the previous version of the OS is still available and can be called up if necessary. The Open-E storage solutions automatically detect the hardware and install drivers required for the SAS and RAID controllers, Fiber Channel HBAs, Ethernet cards, etc. The Open-E DSS (Data Storage Server) is a complete IP and FC (Fiber Channel) storage operating system that offers companies of any size NAS, iSCSI, and FC functions (target and initiator) in a separate application that is easy to use and highly secure against failure. Open-E Data Storage Servers provide a fast, reliable, and scalable platform for IP storage that enables common file access, storage consolidation, and backup and restore. Virtualization, or replication, is another very current subject addressed by Open-E DSS.

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Since the operating system has been optimized for environments with dedicated storage and company networks, the solution is especially suitable for network environments with many clients or applications with a high demand for storage, such as multi-video streaming, HDTV, and others that also require high data throughput and I/O. Support for Windows, NIS, and LDAP domains enables trouble-free expansion of the existing IT infrastructure. The web-supported graphical user interface for management and administration allows reliable control of the storage unit and the process of backing up important data.

About the companies involved

www.basis.biz

BASIS Advanced Information Technologies GmbH (known as BASIS GmbH) has sales offices in Munich, Berlin, and Nuremberg. BASIS is one of the few independent system integrators in Germany with extensive knowledge of Network Attached Storage (NAS), Storage Area Networks (SAN), storage virtualization (file, disk, and tape virtualization), and Information Lifecycle Management (ILM). The company works together with respected manufacturers to design, deliver, install, and maintain economical storage infrastructures that are ready for future demands. The company has extensive market knowledge that enables it to offer it customized solutions. One of its major areas of competence is storage virtualization, both at the block level and the file level. It is also heavily involved in the current subject of virtual tape libraries. As one of the first integrators, BASIS GmbH has launched storage virtualization in productive environments at major corporations like banks and insurance companies. Its customers are currently focusing their attention on Information Lifecycle Management (ILM), and BASIS GmbH is ready to offer comprehensive

solutions. It maintains a team of highly trained specialists who have obtained the required certifications for selected industrial partners. In addition, BASIS GmbH has an ISO 9001-certified telephone hotline with support services for their established line of products.

www.tarox.de

The TAROX corporate group is headquartered in Germany's Ruhr region (Luenen). It is one of Germany's leading systems manufacturers and defines itself as a manufacturer and distributor for modern system vendors. TAROX offers high-quality, built-to-order servers, blade centers, workstations, desktop systems, media systems, and mobile systems. TFT displays and projectors are additional product families. OEM fulfillment service and supply chain management from TAROX round off this manufacturer's offerings. TAROX PREMIUM Distribution includes selected network and periphery products that require a great deal of customer consultation. The TAROX business model unifies complex distribution services with high-quality system technologies that are ready to meet virtually any business requirement encountered by its With the TAROX business model, the contemporary system vendor offers a complete selection of solutions for system vendor requirements.

www.open-e.com

Open-E is a leading vendor and innovative software company for IP-based storage management software with headquarters in the United States and Europe. The Open-E DSS, NAS-R3, and iSCSI-R3 product lines are aimed primarily at small and medium-sized companies. These products have earned an international reputation for strong performance, flexibility, reliability, scalability, and return-on-investment. Open-E GmbH is headquartered in Puchheim, near Munich, where it performs development, European sales, and marketing activities. Software from Open-E is extensively tested and delivers a very high level of performance. It has a very straightforward structure and gives system integrators the ability to construct massive, stable, secure, and easily-configurable storage systems.