



**Erich Böhs**  
**Systems Programming &**  
**Operations Team Leader:**

“By evolving tape processes to the MDL solution, production processes have substantially improved working practices. With more than 5000 3480/3490 cartridges in the tape library, tape processing took a long time. Therefore, with manual tape operations, continuous processing was not possible. The MDL solution allows us control without manual intervention while other critical factors such as elapsed time optimization & security are also realized.”

## The Data Centre.

KRZ-SWD is a prominent IT-services enterprise for Church, Social & Charitable services in Germany.

## The Organization.

KRZ-SWD is an ecumenical trust founded in 1982. Founder members were the Protestant regional churches of Baden, Württemberg & Pfalz, the archdioceses of Rottenburg-Stuttgart & Speyer, as well as the respective regional churches & charitable federations, & the ecclesiastical computer centre organization in South-West Germany.

The mission of the company is to deliver Data Center facilities for ecclesiastical bodies, dioceses, charitable trusts & social services.

## The Services.

The range of services includes IT solutions for payroll & expenses, membership & registration, the financial & accounting reporting systems of regional churches, dioceses & their sub divisions, as well as the support of associations & facilities of the dioceses & charities.

KRZ-SWD provides the software, hardware & communications infrastructure for deployment by their customers.

## Ecclesiastical Data Centre – South Western Germany

### Modernization & virtualization of Mainframe data protection

#### In Focus

The KRZ-SWD ecclesiastical data centre is one of the largest IBM Mainframe customers in Germany deploying the z/VM & z/VSE Operating Systems. Within the computer centre the most modern Mainframe technology is available; IBM z9 processor with 480 MIPS & IBM DS8100 disk array with 5 Terabytes of capacity.

Traditional manual tape processing using 3480 cartridges systems with an Autoloader (CSL) & 8 drives was used in conjunction with an IBM 3494-L12 ATL, supporting 6 3590E tape drives, with capacity for 515 cartridge slots.

Urgent remedial action was required, because the current tape environment no longer delivered the required performance, while there were also reliability & functionality problems. Additionally the existing KRZ-SWD organization had to be considered, supporting many users with only small amounts of data, & so expansion & accumulation of customers was required, without changing the existing KRZ-SWD organization.

Hence, the deployment of a virtual tape server was considered as the only feasible solution at first. However, because of rather high investment costs, the project was not initially considered feasible.

## Considering the optimum solution

On one hand the ideal solution for KRZ-SWD maintained existing data protection processes & therefore required no changes or amendments to the existing organization, software or hardware.

On the other hand, one wished for the application of modern virtualization technology to do justice to the performance & parallelism requirements.

Also, from this point forward, any manual tape handling, so far as practicably possible, should be eliminated.

Furthermore, it was a major consideration that the desired solution supported the Tape Management System (TMS) used by KRZ-SWD, namely EPIC.

From a future positioning viewpoint, especially for capacity & performance extensions, significant value was applied to the simplicity, scalability & upgradability attributes.

Also, as previously mentioned, the new solution should be deployed in an economically sensible manner.

## The solution: Virtualization & Disaster Recovery Protection

The MDL- Virtual Tape Library (formerly known as MAS) from mainstorconcept was the only solution that perfectly fitted all of the KRZ-SWD specifications, having considered other alternatives and after assessment of the requirements:

With the possibility of up to 256 virtual drives in parallel usage, meaning the eradication of tape drive bottlenecks from this point forward. The connection with the z9 Mainframe requires no more than two FICON channel connections - with the highest possible performance available in the Mainframe marketplace. Additionally the standard & available MDL interface with EPIC offers a direct integration between the Tape Management System (TMS) & Virtual Tape Library (VTL).

The storage of the virtual cartridges occurs on a 1:1 basis as MDL files stored on a Fibre Channel connected RAID Disk Array system. Naturally, only the actual data space required is stored for each virtual cartridge created. With a capacity

of 18 Terabytes today & the possibility to extend this at any time & at a reasonable price, this solution corresponds in full circumference to the economic scalability requirements.

Additionally, to guarantee the greatest possible security, all virtual cartridges are backed up via regular cycles from the MDL to a Fibre Channel connected IBM tape Library. With the use of high capacity LTO-4 cartridges with a capacity up to 1,600 GB per cartridge, it is now possible to protect all Mainframe data with an established & reasonable technology via physical tape drives. Because of the Fibre Channel connectivity of the LTO-4 library, this MDL data can now be electronically transferred to another fireproof data centre, currently undergoing construction.

The Atempo Time Navigator software is being used for this data protection process.

The solution has decreased the manual tape handling to a very occasional process; Legacy processing of 3480 cartridges via data carrier exchange.

## Results

KRZ-SWD could deliver all project requirements via this solution. Hence, it is also planned to remove at very short notice, another IBM 3494-L14 ATL with 2 drive 3590-B tape drives & 210 slots with another MDL Virtual Ta

In addition, an impending move to the new high security data centre is substantially simplified. Replacing the move of a Robot (ATL) & physical cartridge library, only half of a 19" server rack is required in the new computer centre.



IBM LTO-4  
Librarv

FICON MDL

RAID  
Array