Case Study
Retro-archiving solution at SWR Germany

At a glance
Südwestrundfunk (SWR), the second-largest regional broadcast station in the ARD consortium of public broadcasters in Germany, faced a massive tape archive digitization challenge. To meet this challenge, SWR researched various retro-archiving solution providers, which lead to Jordi AG Communication, a Swiss corporation with experience in digital archive migration. The ADAM system, developed by Jordi, is a migration system for digitization of broadcast video cassettes. ADAM is fully automated and completely self-monitoring throughout its workflow. The ADAM system's workflow includes two R&S®VENICE video servers for encoding content into the final archived format. Also, an R&S®SpycerBox Cell combined with an R&S®SpycerBox Ultra TL is used for buffering and transfer to the archive administration system.

Products in use
R&S®Venice, R&S®SpycerBox Cell, R&S®SpycerBox Ultra TL, IBM Spectrum Scale

"At SWR, we have a massive tape archive migration project needing 40,000 hours of tape digitization each year. We found the optimum solution in ADAM by Jordi AG Communication. The fully automatic and completely self-monitoring migration system combined with R&S®VENICE servers and R&S®Spycer- Box storage is designed to migrate large tape libraries. Once the system is fully loaded with tapes the system runs autono- mously over the weekend without any manual intervention."
Frank Adam, Director Information, Documentation and Archive of SWR and SR

Highlights

40x
(40 times) faster than manual workflows

Highly reliable

Turnkey solution

Challenges

24/7 operation
SWR required a system that can run for 72 hours (e.g. over a weekend) without human intervention. It can store up to 700 tapes, allowing ADAM to work autonomously for three days, ensuring continuous 24/7 operation.

Archiving throughput of 40,000 tape hours per year
The physical properties of video tape – especially their degradation over time – limit the retention time of tape-based video archives. To prevent this deterioration, SWR made the decision to digitize its entire tape collection – a process that will take several years. This is made feasible through the high reliability and performance of the Rohde & Schwarz server, as part of the ADAM system. With a footprint of just 32 m², the system cleans, analyzes, digitizes and stores up to 40,000 hours of digitized tape material a year.

Providing constantly high data rates
As part of the archiving process, LTO6 tapes are used as a long-term recording media. To maintain the required sustained data rate of 300 Mbyte/s, ADAM uses a R&S®SpycerBox Cell in combination with a R&S®SpycerBox Ultra TL. These two storage systems are connected via 40 Gbit Ethernet based on the IBM Spectrum Scale file system. The fast R&S®SpycerBox Cell storage system serves as a buffer memory and records the encoded files from R&S®VENICE. This data is then transferred to an R&S®SpycerBox Ultra TL, which serves as a mid-term working buffer.

Preserving the frame-based time code from the tapes
R&S®VENICE makes it possible to record the linear time code for the final MXF file. In the case of multi-volume tape collections, it is critical that the linear time code be recorded accurately for each frame, as this is the only way that ADAM can find the right clips on the tape and migrate content based on the database.

Benefits

Only the tape ID is needed – direct transfer of existing tape databases

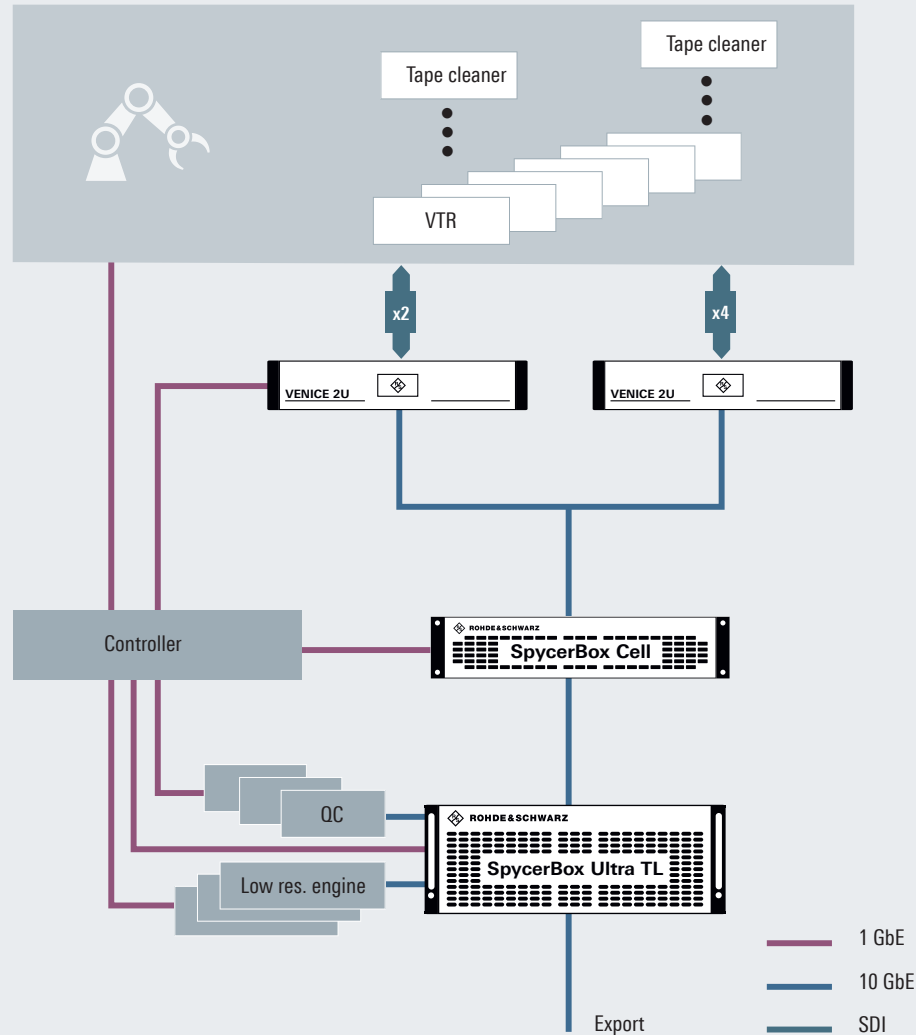**Flexible clip formats, quality parameters and system properties**

Frame-based time code acquisition

Output documentation – all meta data for each file recorded (timecode, picture and sound quality, band characteristics, etc.)

Solution

Six remote-controlled VTRs ingest content via a 4-channel R&S®VENICE and another 2-channel R&S®VENICE, which are FIMS controlled from a Jordi AG controller. Media is recorded onto a single common R&S®SpycerBox Cell SAS storage unit (27 Tbyte) and subsequently copied to another R&S®SpycerBox Ultra TL unit, which serves as a mid-term, non-realtime working buffer for the ingested clips. From there, the clips are provided to external LowRes creation engines and to external QC and reporting engines. The backbone is created using a 40 GbE physical layer and IBM Spectrum Scale with NSD packets as block-organized media exchange mechanism.