

# RSI DIGITAL ARCHIVE DOUBLES ITS CAPACITY AND HALVES DELIVERY TIME WITH PARTIAL RESTORE ON VIDEO MXF HD FILE

The increasing need of long life storage space for the audio-video archive led RSI, Radiotelevisione Svizzera di lingua Italiana, to plan a capacity upgrade with the forthcoming years in mind. Furthermore, performances were felt a key issue to cope with the increased rate of restore from tapes and the need to raise the efficiency of the delivery chain to the production processes. Discovery Storage Manager solution from Discovery Reply has been proven to support not only the technology and capacity switch, but also provided the unparalleled capability of a direct stream tape-to-consumer with partial restore on video MXF HD Long-GOP.

## THE CUSTOMER



**Radiotelevisione Svizzera**

RSI, abbreviation of the Radiotelevisione Svizzera di lingua Italiana, is a Swiss public service Company with headquarters and production centres in Lugano and Comano. RSI produces and distributes radio and television programs throughout the territory of the Swiss Confederation, and is incorporated as a subsidiary of SRG SSR. RSI Radio transmits since 1932.

RSI offers three radio networks with different characteristics respectively generalist, cultural and youthful. RSI Rete Uno transmits all over the country. RSI Rete Due and Rete Tre instead just cover the Italian-speaking region. The three networks are also listenable via Internet streaming. Some programs are distributed as a podcast. Since December 2005, the RSI also provides transmission onto DAB.

Television (RSI - Division television) broadcasts with two networks. While RSI LA1 covers wide general transmission programs, RSI LA2 focuses primarily on sports, music and children. Today, the transmission is over the air in digital format (digital terrestrial), cable and satellite. From 29 February 2012 all channels of SRG SSR have gone into high definition.

## THE SCENARIO

RSI adopted a new system to archive audio-visual assets since 2004, aimed to provide a unified digital archiving solution for both radio and television.

After a first run-in phase in July/August 2004 the system went into final production stage in February 2005, providing a fully automated Newsroom Integration (Sony NewsBase), Massive Audio Ingestion facilities, Digital Logging of broadcast channels (Radio and TV) for legal (witness tape) purposes and Videotape Digitization.



Chosen as system integrator and technological supplier from its very first beginning Discover Reply has constantly supported RSI to extend the system with additional features, integrations and technological upgrades.

In the period 2006-2008 a new cataloguing system replaced the legacy one. The new data model for Radio, Music, TV and Press material has been implemented by Discover Reply based on RAI Multimedia Catalogue model and methodology, with complete documentation and thesaurus management facilities.

Other extensions have been carried out up to nowadays, notably among the most important: Video Print to Tape process, digital video exchange with Studio and Playout systems (GrassValley Profile), integration channel with Television and Radio Production, Speech Recognition and Semantic Categorization to reduce the human cataloguing activities, system enhancement to support the migration to HD Video.

The digital archive system is today fully integrated with Radio Production, TV Newsroom Production, TV Post Production, WEB CMS and Audio and Video Ingestion facilities.

## KEY CHALLENGES

The need of storage space, to cope with the increasing rate of new and historical material, has been the main driver to upgrade the near-line archive with a capacity planning in mind covering the forthcoming years.

Performances were perceived as a key issue as well. The increased rate of restoring requests from tapes has gone to play a critical role also because, like in many broadcasting organizations, RSI often requires quick access to a small portion of archived long video clips. The availability of a fine grained documentation level in the Multimedia Catalogue is actually leading users to request back only the small portion of video needed.

In this scenario, transferring gigabytes of video on disk storage just to extract a small portion of video and get it delivered to the final destination has a hard impact on the system resources, and on the efficiency of the content delivery to the video production and newsroom facilities.

## THE SOLUTION

To cope with the increased need for capacity, the archive facility has been extended with an additional library, and is now made of two Oracle StorageTek SL3000 Tape Libraries. Each of the two libraries have a total capacity of 4000 LTO slots. The new library has been furthermore equipped with LTO6 drive technology, bringing to 11 LTO4/LTO6 drives the overall capability to work in parallel for archiving operations.

The Tape Library management system is built on Discovery Storage Manager (DSM) that controls both the Tape Libraries. The DSM solution supports automatic rotation of exhausted tapes life cycle, and also features the automatic management of off-line backup tapes and hot migration program management. Moreover the system grants the capability to rebuild the entire archive with information collected from tapes after a severe outage (disaster recovery).

The master archive is now populated with more than 87.000 hours of videos over 760.000 video contents, 200.000 hours of radio and music audio over 1.7 million of music records and 205.000 radio recordings. The overall archive sizes is nearly 1.5 PB of high quality audio and video files.

A migration program of digital contents from LTO4 to the new LTO6 tape technology has been planned, leveraging the DSM capability to support an unattended hot migration process.

Furthermore, the DSM features the Direct Delivery capabilities. A direct transfer from the LTO drives to the final production areas is now fully exploited, with no need of temporary copies onto local storages.

Finally, the new video partial restore feature has been enabled. With this feature the cut of video essences (including MXF HD Long-GOP) is now available while reading from the

Digital Tapes, hence providing a seamlessly delivery chain of a video clip segment from the tape media to the final destination, without any temporary store-back on disk. With this feature the impact on the system resources is considerably reduced, in terms of Tape Drive busy time, network load and storage performances. Partial restore and Direct Delivery features were combined to leverage both their benefits, expecting to achieve an average reduction of the transfer time of 50% in RSI environment.



### VIDEO FORMAT

Material eXchange Format (MXF) is a container (wrapper) format widely in use for professional digital video and audio media, it is defined by a set of SMPTE standards. It supports a variety of audio and video compression formats and can embed metadata describing the material content.

## REPLY VALUE

Discovery Reply further consolidated its more than ten-years collaboration with RSI, proving its ability of guidance on the adoption of cutting edge technologies, along with a very deep understanding of the RSI's internal processes. The expertise on the archiving infrastructures and solutions, in collaboration with Oracle StorageTek, were combined with the deep knowledge of the video MXF standards and played as key factors for the success of the project. Discovery Reply is continuing to act as technological partner for RSI, bringing the know-how and expertise to design architectures with high technological innovation.



Discovery Reply is a division of the Reply Group that specializes in Digital Asset Management solutions for managing the entire life-cycle of digital business assets, such as videos, images, audio files, and graphic documents. Based on the Digital Asset Management platform, Discovery Reply develops vertical applications for broadcasters and leading companies in a variety of international industrial sectors, thereby providing innovative visual experiences and management models. Discovery Reply integrates the supply itself with expert advice and system integration services in the areas of process engineering and review, technological upgrades technology and provider selection, management, and digital content production and distribution.

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