



Audio editing



Dubbing / translation



Audio control room



Ingest and copy



Benefits

"The channel is now equipped with a platform that has two major assets."

On the one hand, the technological breakthrough of high definition using files as a working base and, on the other hand, the unique aspect of our workflow with the work on the shared servers and the use of a non-flat file format for an easier work with the audio."

Alain Schank | Responsable Service TV-Systèmes | ARTE-GEIE.



AV matrix

- Optimisation of the workflow**
- Giving up of the tapes in favour of the file**
- Easy management of the medias' audio versions**
- High definition at every level from production to broadcasting**
- Facility open to the future supply of new broadcasting vectors**



References, videos, news, articles, contacts, **case studies** and much more on www.bce.lu.

Case study

The shift to HD in a file-based environment



"BCE managed to emphasize its expertise in the accomplishment of the works and the management of the relationships with third parties."

Thomas Palm | Directeur des Technologies | ARTE-GEIE.

Arte is a European cultural channel intended for any television-viewer in Europe, and particularly in France and in Germany, who is curious and open to the world.

In 2010, Arte's headquarters located in Strasbourg decided to modernise its facilities by shifting to high definition in a file-based environment.

Following a European tender, BCE (Broadcasting Center Europe) was appointed leader of the project.

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Challenge

The shift to HD and the file-based environment

In order to guarantee the durability of its activities in Europe according to the growing demand from the audience, the European cultural channel is adapting the facilities of its site in Strasbourg to High Definition.

Such a change involves significant material reorganizations, both in terms of production, montage and editing units, and in terms of broadcasting.

Other than this necessary shift, Arte has also decided to transfer the entire workflow of the company to a file-based environment by adopting the AVC-i@100Mbps MXF OP1b-wrapped format, thus improving the fluidity of the connections between the departments and enabling quick and easy access to any file's audio tracks (multilingual management).



"One of the workflow innovations stands in the choice of the work format. Whereas most companies work with light files in which audio and video tracks are only one file (flat file), Arte has decided to go for the AVC-i@100Mbps MXF OP1b-wrapped format, which enables the teams to have access to the audio details of the file, which is essential for a channel which deals daily with French, German and original versions."
Sven Weisen | Project Manager | BCE.



Solution



The implementation of Arte's new facilities has taken place in unique conditions in which BCE had to play the card of flexibility by ensuring the evolution of the channel without jeopardizing the smooth process of daily operations.

The project was thus achieved in two years with, first, the upgrading of the so-called "production" facilities and second, that of the "broadcasting" facilities – each one of them possessing its own content management.

Production, creativity in HD mode

This department creates the content of the channel's programs, as well as midday and evening news.

The first step of the project consisted in the implementation of centralised management system of the production's content (PAM); as the true core of the production's workflow, it carries data towards each station and optimises the workflow.

This PAM deals with material management (files, feeds from the press agencies and tapes) on the one hand, and filing including a thesaurus function (generation and interconnection of keywords) on the other hand.

The consultation of the content and the task management are carried out through a Web Client and, therefore, are available from anywhere.

The source of the file-based environment

One of the first steps in the implementation of such a facility is the content digitisation centre, more commonly called centralised ingest platform. Working with many countries and thus juggling with countless formats and content sources, this platform can digitise almost anything and convert videos into Arte's working format (AVC-i@100Mbps).

The platform's automation ensures the running of the VTR and over-the-air

signals but also allows the opposite process, i.e. the recording of file content on a tape.

Centralised work

All computer equipment from the editing room and control room (80 clients) has been transferred to the mechanical room in order to shorten noise nuisance in those rooms. Equipped with a KVM system, the rooms are connected with the client through IP.

BCE has set up four types of editing rooms: for the news, the broadcasts, the audio and the effects (including colorimetry). The audio editing rooms are equipped with the Satellite Video



System which facilitates operation by separating audio and video during the exchanges and by gathering them automatically for the final version.

The editors can also work with "non-flat" sessions (files in their original format with distinct audio and video tracks) in order to allow an easy integration of additional audio tracks.

Resiliency and plurality

Both control rooms, built as before as a resiliency solution, are perfectly adapted to high-precision work.

The studio manager has direct access to 22 video channels in order to produce television broadcasts and news. This plurality of the sources is also reinforced from the point of view of the audio engineer who has got access to the main audio router (64000 channels) and therefore to all the sources (signals from the studio,



videos, microphones, and voices from the translation system).

The redundancy of the rooms is perfect and the passage from one room to another can be done immediately thanks to the KVM system.

Broadcasting in a tapeless workflow

The installation of the broadcasting facilities has been carried out while the site was in full operation. BCE thus had to set the installations in parallel with Arte's operations. By ensuring the complete migration to high definition, BCE also had to update the technologies without disturbing their users' habits.

Working with existing technology

Arte having developed its own MAM for the broadcasting, BCE had to integrate the new installations within the existing technology and ensure its symbiosis with third applications.

Therefore, the new platform incorporates quality control in terms of audio (guarantees conformity with the Loudness R128 standard) and video. The

casting platform with various systems that are necessary to ensure the management of the new standards of Dolby E, Dolby Digital 5.1 and 2.0 and Dolby Digital Plus as well as the compliance with the Loudness R128 standards.

In order to acquire rapidity, Arte now works with content whose audio and video tracks are distinct. Therefore, when a modification is made on the

"Our teams had to show significant accuracy and a narrow collaboration with Arte's teams in the context of the broadcasting department migration. Indeed, the works were carried out while the site was in full operation and our team had to ensure the running of the new systems without disturbing the broadcasting."

Frederic Fievez | Manager Special Projects | BCE.

"workflow engine" enables file transfer from a storage location to another. The MAM works with archives.

audio, all that has to be done is change the related track without having to recalculate the global file. ■

A (multi)cultural channel

With Arte broadcasting its programs in two languages, subtitling had to allow multilingual management for the German and French channels, which do not share the same schedules. For instance, during a live event, the subtitling system allows the handling of the subtitles produced by the teams and makes it possible to move them according to the other channel's broadcast time.

Standards and simplified management for the audio

In accordance with the new technology, BCE has equipped Arte's broad-

