

## MEDIASET: AN ADVANCED & RELIABLE SYSTEM

The new Mediaset digital play-out put itself within the most advanced ones Europe wide and maybe world wide, thanks to its technological contents (really tape-less).



Mediaset 2004

Up to about 1000 events “scheduled” daily, 8 independent broadcasting systems, thanks to two 8 TB SeaChange servers and Etere Automation software, in order to manage Canale 5, Italia 1 and Rete 4 broadcasting with maximum reliability.

A new digital play-out that makes of its reliability and its technological innovation (aimed to workflow flexibility) its points of strength. Even if the system was thought and planned four years ago, and also considering the fast innovation of IT technologies (in which most of the project is based), this system – for lots of this field’s experts – is still one of the most advanced in Europe, and maybe in the world.

The credit to this “farsightedness” goes for sure to Manlio Cruciatti’s (former Videotime Technical Director) team and to ETERE staff, headed by Fabio Gattari.

Going over the details of a predictable delay – due also to the excessive technological innovation introduced in the project – it is useful to explain the important aspects of this awesome system. In order to give you an idea of what really means to implement a play-out for the Mediaset channels, here are some numbers, so that you can realize what we intend to tell.

### Significant numbers

Let’s see the reference numbers in economic terms: this play-out broadcasts about 1000 events daily, for each single channel, with a planned value of about 2,400 millions of euro per year, which are equivalent to 200 millions of euro per month, to reach about 7 millions of euro each day, and 300,000 euro each hour. An infernal machine that cannot afford to lose a single shot.



That is why a series of tricks and solutions have been studied in order to guarantee maximum reliability. These solutions, scaled to other levels, can become useful to our readers. Therefore we introduce you with emphasis what it can be easily be defined the most important and advanced project ever realized by the Mediaset group.

At the beginning of everything...

The project, as we said, was planned in 2000. If we want to assign a starting date to the system's ideation, we could probably affirm that "the first stone" was set down when the SeaChange server where delivered, unloaded by a French truck at the entrance of Technobuilding in Cologno Monzese, the structure dedicated to host the broadcasting structures and video centre at late night on December 29th, 2000 – as Paolo Birra, technical director of SeaChange Italy – tells us.



After an initial delay, Mediaset decided to create a dedicated task force (headed by Piercarlo Invernizzi, who had previously matured a significant experience during the making of the system that managed short events, supported by Antonio Castoldi from Videotime) in order to acquire consciousness of the project and the technology associated to it, in order to give more independence to the technical support team, and finally to accomplish the realization of the system. We must say that this "cross team" was composed of people from different department of the same group, which, as Castoldi said, "forgot their team's shirt, and worked with the common goal of realizing the project, with the best result possible".

Just to list some names, other than Daniele Sangiorgi, Director of TOC- Technical Operation Centre, we must mention Luca Sorcinelli, Rosa Pozzi, Alfonso Civaschi, Angelo Codecasa, Fabio Rossi, etc... So, at the end of 2002 the installation began is dry run period, in parallel for months with the Segrate system. This period it has also been helpful for training people on the new digital broadcasting system. Then, digital splitting for single channels has been gradually initiated. On May 5th Rete 4 has officially started; on June 15th was Italia 1's turn; finally Canale 5 switched on October 20th. To guarantee the maximum safety, for a certain period after the first digital system had been activated, the old system was kept functioning still.

## The key operating process

In order to understand properly the reasons of some decisions, it is important to start from the beginning.

For every important system, it is essential to have an analysis period, when the workflow is defined, including all the possible critical issues regarding the several areas involved in it, and the multiple needs requested by the different structures, in order to perform their activities.

For the Mediaset play-out, the process is practically generated by three different structures: RTI (with three different network departments for Canale 5, Italia 1 and Rete 4), Publitalia Tabellare (commercials) and Publitalia Eventi Speciali (special events). Compilations with programs, commercial events, logos, station breaks, crawls and texts (commercial logo, second half, red, green and yellow mark for restricted programs, etc..) comes from these three different areas to the broadcasting structure, managed by Piercarlo Invernizzi, and they must be planned; all this means creating the scheduling list.

In this phase the most important role is played by the assembler (scheduler), who acquires all this data from the network, verifies its compatibility and starts structuring the schedule, defining break and insert points for all the events, and calculating the commercial crowding after every single change he applies.

At the same time, an analysis is performed in order to verify availability of the scheduled content. Movies, series, commercials, station breaks and promotions, recorded events, live events, documentaries, are checked in, first of all, to see if they're available for ingestion, then their quality is checked, and finally they're ingested in the server by the operators, with all mark-ins and mark-outs, which are really frame accurate.

All the identification process of analogue supports coming from the video library is performed using optical readers, which allow to automatically managing caching from cart-machines into the server. It's important to say that all events broadcasted by Canale 5, Italia 1 and Rete 4, excluding live events, come from the server. The tools available for the on-air operator are the Etere interface to manage automation and Miranda-Oxtel master control. His duty is to broadcast all the events scheduled by the assembler, to verify the as run and to take charge of sudden changes (changes of durations during live events, breakdowns or operative errors).

Once all the contents, day after day, are broadcasted, an as run log is given back both to RTI (for stations' rights on runs) and Publitalia (for billing of commercials).

After this first presentation, everything seems easy and immediate. However, we cannot forget that this is one of the most important areas of the whole Mediaset group: broadcasting of the whole commercial planning, which include planning for 7 millions of euro per day, with an average of about 300,000 euro per hour (but this amount is much higher during prime-time, when a single spot of about 30 seconds can cost more than the average hour), depends on this system.



### The technological system

We are talking about a complex and advanced project in these days still, even though it's been planned back in 2000. The primary goal is to have flexible system, but most of all safe and reliable, in any condition and situation. For this reason, redundancy has been integrated to the top levels, in order to avoid any single theoretic stop of the system.



To get in the details, 2 SeaChange servers have been integrated, and Etere Media Manager provides for copying all the content of the first server into the second one. Each server has a capacity of 8 TB, with the second one operating on-line in parallel, 'mirrored' and twin with the first one.

The project has two complete broadcasting systems for each single station (each one equipped with a server, a master control and the Etere automation play-out software) symmetric and independent, which always runs aligned. Any time the first broadcasting channels stops on any station, operator can switch to the second online channel using just a button.

In addition to the six primary systems (two for each station), totally independent and redundant on any possible section, two more play-out system have been integrated, complete and configured just like the primary six, and they are used both as a test area or "spare" broadcasting room. This fourth broadcasting room can be used by each one of the three stations at any time.

Moreover, a VTR based system for each single station is also kept parallel to the on-air schedule, thanks to an application developed by company programmers, which is used by the operator to keep the VTR aligned with the events broadcasted by the SeaChange server. Sony IMX VTR themselves, in case of sever damage, can be linked to distribution links using simple patch panels.

Finally, in case of calamity or accidental events, they're planning for the future an automatic splitting from the Cologno Monzese transmission area to the in Segrate, where a backup system with a certain amount of available hours is in plan.

This last system is also used for quality control. This way, with a single switch, a check on both systems can be performed.

Let's get into the details...

The bases of this important project, on the technological point of view, are the SeaChange software and Etere automation software. For the infrastructures, we list the Leitch video routers, the Miranda-Oxtel master controls, and finally the Cisco Catalyst 5900 routers. The SeaChange video servers (two Broadcast Media Cluster 1237 series, with 7 nodes each, and two Broadcast Media Cluster 1233 series, with 3 nodes each) have been the first devices to be installed in the server room. All the SeaChange Broadcast Media Cluster installed on the Cologno transmission centre are controlled by the automation system through VDCP protocol via IP, which it's been customized for Mediaset productive demands.



The two BMC 1237 series systems, with 7 nodes, 42 input/output channels each, are equipped with 146 Gigabytes hard disks (12 disks for each node, for a total of 168 disks), which provides a storage capacity of 7.9 Terabytes for each system, equivalent to 39 days of capacity, calculated on a basis of 20Mb/s, the bit-rate used at the moment for ingestion.

Finally, a third system, a Broadcast Media Cluster, series 1233, three nodes, equipped with 36 Gigabytes hard disks, is used for browsing on PC of all ingested materials. This device has 16 inputs in MPEG-1 format and its disks can store up to 1579 hours, which means 66 days of content (a 1Mb/s), redundant with RAID architecture.

#### ETERE contribution

For automation, Etere's work has been long and complex, also considering the large amount of workflows requirements in use within the group.

All the scheduling, ingest, planning and broadcasting steps are managed by the modules of Fabio Gattari's company. The installation is composed of the following areas: scheduling system for play-lists, schedule management, automatic and manual ingestion, quality control and backup copies management. Moreover, a low resolution video is generated in order to give to scheduling operator the possibility to browse the content from their ordinary PCs.



For the first time, Etere has integrated IP control of the video server, eliminating the RS 422 based system, which means reducing the system's infrastructure. Moreover, Etere software provides for low resolution content of the as run, including titles, logos, and subtitles, etc. Mediaset has purchased 100 licenses and, at the same time, the software from Gattari's company controls almost 130 different devices.