

SeaChange® MediaCluster® Broadcast Server at Tele+ in Milan, Italy



TELE+ and D+ Production- and Playout Center in Milan

In the early 80's Berlusconi started Telepiu' as an Experimental-TV channel with three terrestrial feeds. After being not very successful with the program, his son Silvio took over the station. He did not raise more profit so they sold the station to Canal+. The assumption by Canal+ (France) and the massive investment into digital technique at Tele+ - the analogue playout - and D+ - the digital platform - prognosis for the year 2000 are positive. Mauro Cassanmagnago (Production Center Manager at TELE+, based at Via Europe in Cologno Monzese, Milan) tells more about the most recent investments and the playout.

Partners

Until 31.8.99, French broadcaster Canal+ was holding 99 percent of the Tele+ shares. Only 1 percent belonged to RAI. Since first of September 1999 ENEL (Italian National Electricity Company) holds 30 percent of the shares and RAI got the option to increase their bonds up to 10 percent. Canal+ holds the rest. "This specific partitioning keeps *the Italian face of Tele+*", said Mauro Cassanmagnago.



Mauro Cassanmagnago (Production Center Manager Tele+ in Cologno, Italy)

First digital platform

In the year 1995, Tele+ invested into the first digital platform. At that point, besides Sony LMS-400, -500 and LMS-1000, they used Tektronix Profile PDR-100 as playout server. With two analogue terrestrial channels, subscribers were able to receive **Tele+ Bianco** and **Tele+ Nero** as part of the basic program. Today, the Premium digital program D+ (name of the platform) with **Tele+ Grigio**, **Tele+ 16:9**, and Multithematiques and PALCO, the PPV- (Pay-Per-View) service is transmitted via set-top boxes (rented to customers) to their subscribers. On top of that, Tele+ delivers 24 programs (Basic package and as option) additionally, which are selectable and pre-viewable via EPG (Electronic Program Guide).

To provide and secure this full-service to their customers and subscribers, Tele+ built a production center with a total space of 5000m². Journalist and editor's offices, as well as production studios and editing, postproduction, playout, and up-link facilities are integrated. The administrative offices (management and call-centers (in Rome and Milan with approximately 450 employees working in shifts)) are located in a suburb of Milan.

Tele+ designed the whole studio, production, and playout complex by themselves. As Mauro Cassanmagnago says, "when we (the crew (10) of the service department) like, we sit down and play a little bit around, make changes and design new. You can see what final results we have got." A local contractor always does the final installation.

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Redundancy

Tele+ is equipped with a fully redundant technique. Each machine (UPS generator from Germany, Tektronix and SeaChange server, playout, CG from Insciber running on NT mainframes, etc.) has a full backup and takes over whenever required. I.e. two power lines are coming into each rack with two independent sockets. A small unit ensures the switchover between the two lines during a power failure. Although the investment doubled in costs, the playout security of advertisement

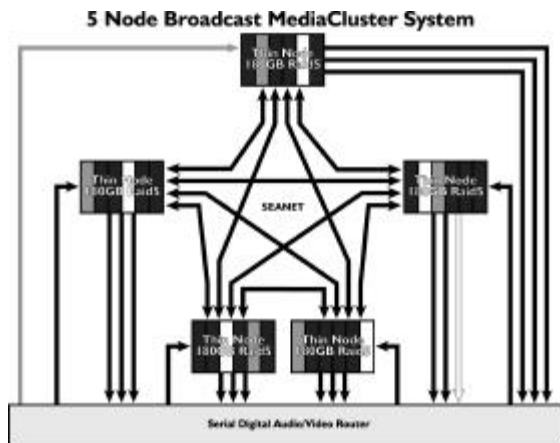


Tele+/D+ programs

and program warrant the decision. All signals recorded/play-backed from the Tektronix Profile[®] servers are at 48 MB/s, which allows best picture and sound quality. Tele+ take the view that all program segment, played-back "on air" from a server or a VTR tape, is parallel played from another VTR. This method sounds old-fashioned, but it is the only way to make a system fully redundant.

All PC systems are networked, whereas the administration is centralised and very efficient. The used Louth automation system ADC-200, which runs on Windows NT, is mirrored on two NT-servers for optimal data security.

Although production is still based partially on analogue/digital tapes and the archive depends on tapes totally, in 1998 Tele+ invested into a Broadcast MediaCluster Server coming from *SeaChange International, Inc.* (Maynard, Massachusetts/USA). The benefit of this server is the multi-channel playout performance. Each disk-array of a Broadcast MediaCluster Server supports up to four independent channels. The MediaCluster technology uses data integrity based on RAID-Level 5, and increased security in connecting nodes together, to provide redundancy. Even if a HDD or even if a single node in the server architecture fails, the system still keeps on air. The faulty HDD can be exchanged without powering the system down. The missing data will be re-generated instantly. Furthermore, hard- and/or software updates/upgrades are during on air playout service



A five node Broadcast MediaCluster with five encoders and 15 decoders will write five 24Mb/s streams to disk and simultaneously deliver 15 24 Mb/s streams from storage.

possible. To increase server capacity by exchanging HDDs or even adding additional disk-arrays is possible. At Tele+, the amount of server capacity can be increased to at least up to seven TB (7-node cluster) just by swapping from 9,1 GB IBM *Ultrastar* HDDs to either 18 GB or 36 GB IBM *Ultrastar* HDDs. This leads to a doubling or even tripling of the available capacity without re-booting or switch-off of the server. Tele+ ordered a second SeaChange[®] Broadcast MediaCluster Server on third of September '99. "The purpose of it is simply full redundancy, without Tele+ cannot exist", said Mauro Cassanmagnago. The server holds all mirrored material and takes over the playout without any time delay, because of its automatically switching ability. This is now the third Broadcast MediaCluster server in Europe after the first installation at the Finland TV (MTV3).

By use of the three existing Sony LMS-400/500/1000's, the playout material is transferred onto the available servers (Tektronix Profile PDR-100 or -200/SeaChange MediaCluster). In addition, the LMS's is being used for parallel program playout of server or VTR based material.

In the three production studios and six edit suites, which are all identical built (Sony DVM-7200 and BVE-9100, Charisma X-ten DVE, etc.) for maximum performance of all freelancers and employees, station-originated program is produced. Nevertheless, the DISNEY CHANNEL holds its own independent facilities within Tele+, with power lines, servers, playout, VTRs, and operators (6 working in shifts for playout), which produce the channels program. This decision secures best picture and sound quality as required by its client.

Three HAL Express support their needs for graphical editing (sports, news, etc.) in conjunction with dedicated (Inscriber/For.A) PC's. Avid MC 8000 and two Avid Symphony perform non-linear editing (NLE).

Subscribers and total Investment

In the meantime, Tele+ has 1.300.000 subscribers, which use 2.000.000 different subscriber profiles (750.000 digital, 550.000 analogue, 700.000 Premium/PPV/optional programs). Since the start of the investment into digital technology Tele+ invested and is still investing 10.000.000 € a year into the playout-/production center (excluding encryption and call-center software/equipment). "Although the back-payment of the investment is not yet finished, Tele+ will reach its break-even in the upcoming year 2000 because we are growing so fast", stated Mauro Cassanmagnago.



Broadcast MediaCluster server at Tele+

Statement of Production Center Manager

Citation of Mauro Cassanmagnago: "When I contacted SeaChange for the first time, they have been only in the cable business. They did not know anything about DVB, 601 video or even AES/EBU audio. Although we have had some problems with audio - clicking and pops - in the very beginning, we are now satisfied. Looking back from then to their product line of today, they have learned their lessons and designed a reliable server."