SeaChange® Stories

HD and more
in Central Europe

T he CME group is a leading media company with television operations in Croatia, the Czech Republic, Romania, Slovakia, Slovenia and Ukraine. With a central technical team based at Pro TV in Romania committed to implementing innovative solutions around a central standardised core, the group is bringing HD – and mobile television – to new markets and delivering on terrestrial, cable and satellite.

Central to the core technology infrastructure is automated playout from SeaChange® servers, under the control of automation from Pebble Beach Systems.

"We are currently running five channels in Romania, and we have just acquired the local franchise for MTV," explained Claudiu Paraschiv. He is director of technical operations at Pro TV in Bucharest, and as Pro TV provides consultancy to the other autonomous broadcasters within the group, he has an important role in implementing change in all CME stations.

"Four of our five channels – Pro TV which is a general interest channel, Acasa for women, Cinema and Sport – are available on terrestrial, cable and satellite," Paraschiv explained. "Pro TV is also available in MPEG-4 HD over the air in Bucharest, which makes us the only HD terrestrial broadcaster in Central and Eastern Europe. And we are running a four-channel DVB-H experiment, on the same multiplex as Pro HD."

The high definition capability is an important part of CME's ambitions. "We want to spread HD as far as possible," said Paraschiv. "Two years ago we found that the technology was ready and affordable, so we actually jumped direct from analogue to HD."

Moving from analogue to multi-format and multi-platform was a challenge for Pro TV. "We decided to look at medium-sized companies," Paraschiv recalled. "We wanted to avoid an automation solution that disappeared after five years, but one which was flexible enough to expand with us, and which could offer a good business partnership."

Server and Automation
The first key decision was the server platform, and here the choice was for SeaChange. "The main advantage of SeaChange over other solutions, as we saw it at the time, was the MediaCluster® technology which sits underneath the system," Paraschiv explained. "This

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cluster technology brings about the same level of redundancy as a mirrored solution at a much lower cost – saving us a minimum of 30%."

Also important was the ability to accept mixed standard and high definition content inside the servers, with automated up or down conversion in real time at the output. While such multi-format capability is now offered by other server manufacturers it was unique to SeaChange at the time and became a major benefit: "We used this feature to save space in the storage."

Finally, the Pro TV team were impressed with SeaChange's adoption of software codecs and an IP infrastructure. This allowed them to develop FTP connections with other media platforms in the station, including Avid editors and the Harris newsroom.

Having made the commitment to the SeaChange solution, the choice of automation provider became easier. "Pebble Beach Systems was one of the few who could demonstrate a good working solution with SeaChange, including an installation here in Romania," according to Paraschiv.

He also felt that he could rely on them for a continuing working relationship. "They are dynamic and supportive, and committed to growing their own business through continuous development, not sell and retire," was the way Paraschiv described Pebble Beach. "Big suppliers can be very slow when you ask for new functionality, but over the last year we have added four more channels and dramatically changed the original configuration thanks to Pebble Beach.

"Together we reconfigured the system and added channels overnight with Pro TV still on air," he added. "The fact that we could do it without any airtime loss was an excellent demonstration that Pebble Beach is doing a good job."

Reliability and Expansion
High availability is critical to the whole operation, with redundancy in the server and multi-level redundancy in the automation to completely eliminate any single point of failure. For example, the backup controller continually runs in synchronization with the main controller, so if there is a problem it is a single button touch to switch from one to the other.

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To optimize the investment in server channels and other external equipment the system also benefits from Pebble Beach's unique N + n redundancy scheme. This treats key resources as a pool rather than dedicating them to specific services.

So in the event of a failure with one server port, for example, the automation simply picks one of the spare ports in the pool and makes that the playout channel, resetting the path through the router. System designers then just need to scale the resources based on the number of outputs required (N) plus the number of spare ports required to provide the right degree of resilience (n). It means that you can build a highly reliable infrastructure without the need for a complete backup path for each channel, a significant saving in resources. Should there be a software issue with the automation, there is a VPN connection between Pro TV and Pebble Beach's offices in the UK, so support engineers can access the whole of the system remotely if needed.

Expansion is another important part of the infrastructure. The master control room has three operating positions for the five – soon to be six – channels. However, the plan is this configuration will continue to expand up to a total of 12 channels, comfortably within the capabilities of the server and automation network as installed.

This will still allow operators to take live control of channels where necessary, for instance getting in and out of live programs from Pro TV's own studios (including a high definition news studio, with two other studios to be upgraded to HD shortly) and when broadcasting sports events.

HD is also seen as an important part of the future development. "The feedback from the market is very good," said Claudiu Paraschiv. "Those who have HD at home are very positive, and it is clear that they want us to move forward.

"Most of our infrastructure is HD ready," he added. "We can go HD on any channel at any time, as soon as the distribution platform is ready."

Pro TV in Romania was one of the first HD installations commissioned using Pebble Beach automation and SeaChange server technology. The servers – whose capacity is around 40 days of broadcasting – store content in its native format, so there is a mix of HD and SD. The automation tracks the content format and routes it through up or down converters as required, live at the moment of playout.

The new playout center at Pro TV in Bucharest is on air with HD, it is also providing multiple SD channels to multiple platforms plus an additional satellite channel for Romanian ex-patriots delivered internationally, and now it is also supporting channels of mobile television. Has the combination of SeaChange and Pebble Beach Systems proved effective? "The price was right and the business proposal was good," concluded Claudiu Paraschiv. "I am sure we were not wrong in our choice."

TV Nova

By acting as technical consultant to the whole group, Pro TV aims to bring a standardized solution to the other broadcasters in the CME group. As Claudio Paraschiv said, "We want to apply similar thinking across the group. It gives us a stronger position when we are negotiating with our key vendors."

The first example of this "similar thinking" approach can be seen at sister station TV Nova, based in the legendary Barrandov Studios in Prague, Czech Republic. What is interesting is that the playout system here is both similar and distinctly different to the way that it has been implemented at Pro TV, a testament to the flexibility of the core components in adapting to local requirements.

TV Nova was founded in 1993 and has been automated from the very start, first using robot tape libraries, and moving on to some of the first Profile servers as soon as they became available. In 1996 staff member Ludek Ranc started development of an in-house system with the functionality they required.

His continuing work on the system meant that it was in use up until 2007 and the implementation of the Pebble Beach automation. With the rapid growth in business, though, CME knew that the time was right to move to an automation product that was benefitting from continuing development. Only a specialist supplier such as Pebble Beach

has the resources to deliver a system which is functionally rich and also ensures the very high level of reliability demanded.

There are three channels currently being transmitted from Prague: TV Nova itself, Nova Cinema and Galaxy Sport. Each is broadcast on three platforms: HD, SD for digital terrestrial and analogue SD. HD is of course broadcast in 16:9; on digital platforms SD widescreen programs are broadcast as full height anamorphic signals, whereas on analogue terrestrial they are letterboxed. Clearly the requirement is for a number of paths through the router, ARCs and standards converters.

Unlike Pro TV, where the server stores each item in its native format, TV Nova stores everything on SeaChange servers in HD, using Snell & Wilcox high quality Quasar up-converters where necessary. Additional database fields were added by Pebble Beach to track the format of each piece of content so that it knows how to set the up-converters on ingest and the ARCs on playout for the different platforms. Audio is normally in 5.1 Dolby E, and this has to be routed to processors where it must be converted to stereo or mono.

Another significant operational difference is that TV Nova has elected to install a much smaller server capability – about two days' capacity – and therefore needs to ingest much closer to transmission. To ensure that this is an error free process has again called for developments to the automated workflow.

Integration
TV Nova uses the Provys traffic system, developed in Prague by DCIT. This also generates the dub list for the ingest workstations. Using the Pebble Beach software development tools, Ludek Ranc has developed an in-house translator between Provys and the automation, to ensure that the database is ready to accept the new ingests.

Otherwise the ingest process is completely managed by the automation system, setting router paths as necessary. On playout each channel has a Harris Neo switcher, controlled by Pebble Beach. Each Neo handles the three signal paths – HD, digital and analogue – adding appropriate logos on each path.

Like Pro TV, TV Nova has its own news operation. With acquisition using Sony XDCam HD camcorders and production using the Thomson Aurora system, it is almost certainly the

first fully HD news operation in Europe. The two news programs a day, plus the breakfast magazine show, come from a studio in the same building and appear to the automation as a live event.

Ranc's custom software also provides another unusual but useful function. As in most territories there are limits on the amount of commercial content that can be broadcast, measured in both minutes in any clock hour and minutes per hour averaged over the day. TV Nova is a successful station and could easily sell more than its legal allowance of commercial spots, so Ranc has developed a tracking system which flags up any overselling of advertising space and allows operators to edit the list to bring it back within limits. "The Pebble Beach team are extremely easy to work with," said Ranc. "We work together to develop the additional functionality we need."

By comparing and contrasting Pro TV in Romania and TV Nova in Prague it is easy to see the wisdom of their policy of selecting core technologies which are powerful and flexible enough to be tailored to individual requirements.

The key components are the Pebble Beach automation and the SeaChange server. These provide fundamental platforms which are extremely reliable and stable, with innovative synchronization and failover schemes to provide complete redundancy without huge capital investment. On to that strong platform, workflows have been built that meet the specific needs of the individual stations.

Pro TV in Romania and TV Nova are leaders in Europe in automated, high definition, multi-platform broadcasting, developing a strong technology base that can be rolled out to sister stations in sister stations in Croatia, Slovakia, Slovenia and Ukraine. Their powerful and flexible playout operations are a model for advanced broadcasters everywhere.

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SeaChange®