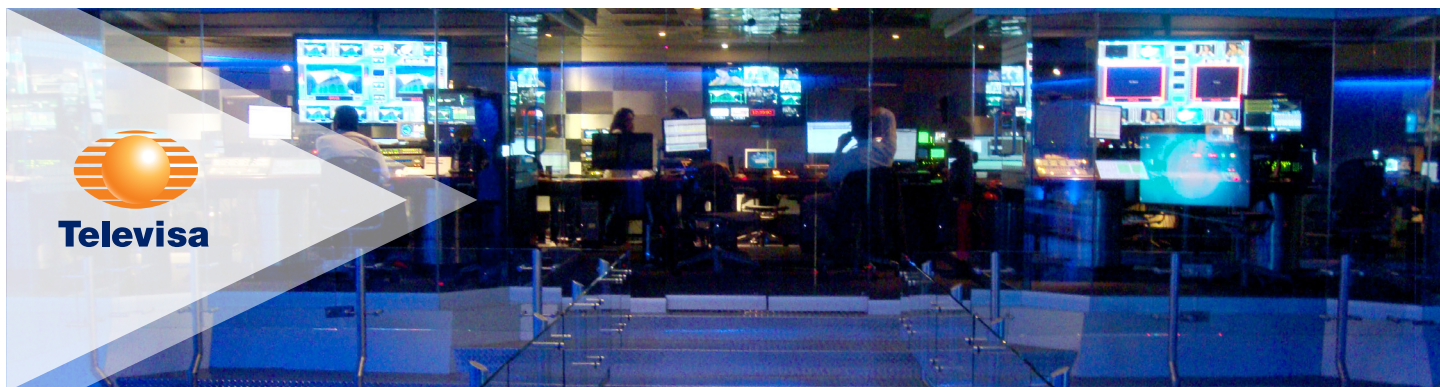# Televisa

CASE STUDY

The Challenge

Behind a plain façade on Mexico City's Avenida Chapultepec, the futuristic Televisa broadcast master control center resides on an upper floor beyond a 50-foot wall of glass. The setting suggests the main bridge of the Starship Enterprise, complete with automatic sliding entry doors. But here the focus on the future is more than a decorative motif. It's the basis for a highly deliberate technology planning process that leaves nothing to chance. So when Televisa engineers determined that all the SD video servers they had in place for national playout were in sight of their end of life, they made the decision that the replacement servers must not only provide the additional needed capacity but also handle both SD and HD in a new tapeless workflow. For the short-listed vendors invited to propose their products, it was not enough to document specifications or give a brief demo. All four were required in turn to install their gear at Televisa's broadcast center and let it be tested over a period of weeks. Only then was Televisa satisfied that it had chosen the most future-proof solution of all: the Harmonic Spectrum™ media server and MediaGrid scalable shared storage system.

"We're happy with the Harmonic equipment, as well as the service we receive from Harmonic and AMTEC. We also appreciate that Harmonic continues to improve the equipment and has brought in new functionality that meets our requirements for growth and our future needs."

Armando Medina,
Technical Director, Televisa Broadcast Center

SOLUTION AT A GLANCE

CHALLENGE:
Televisa, the world's largest producer and distributor of Spanish-language content, required a highly scalable server solution that could expand smoothly and cost-effectively not only to provide the company with greater capacity, but also to support its migration from SD to HD and from tape-based operations to file-based workflows. The challenge for Televisa and its integrator, AMTEC, was to identify and implement future-proof media server and storage systems that met these requirements while assuring reliable performance and seamless integration with existing automation and media asset management (MAM) systems.

SOLUTION:
Harmonic has provided Televisa with Spectrum™ media server systems and Harmonic MediaGrid shared storage systems to support an evolving and expanding multiformat production and playout environment. Enabling a rapid, flexible edit-in-place workflow, the MediaGrid storage systems have introduced significant efficiencies to Televisa's production workflow. As Televisa has moved increasingly toward HD production, the Spectrum systems' integrated processing capabilities have simplified and streamlined the company's storage and playout of multiformat content while maintaining the quality of audio and video throughout the workflow.

BENEFITS:
- Playout with automated downconversion for SD/HD simulcast
- Edit-in-place storage for program and promo production
- Central storage
- Disaster recovery

The Solution and Workflow

The first Spectrum media servers were provided to Televisa by Harmonic's channel partner and platinum master reseller AM Tecnologia (AMTEC). The testing process had proved the benefits of the Spectrum system's modular architecture, reliability, and robustness. The Spectrum server's open architecture also passed Televisa's requirement that the system be able to operate seamlessly with Aveco automation and Tedial media asset management (MAM).

As a broadcast master control center handling four broadcast networks, the Televisa facility has constantly evolving requirements. So, no sooner were the original Spectrum servers installed, with MediaGrid for storage and in-place editing, than Televisa decided to change its institutional video format from MPEG-2 Long-GOP to DVCPRO50. One of the key Spectrum capabilities that influenced Televisa's buying decision was, of course, the very wide range of formats it was able to support — providing the network with a flexible, future-proof multiformat environment.

The change from MPEG-2 to DVCPRO50, which took place the following year, was easily implemented by Harmonic with a simple change in license. But the format change also involved an increase in bit rate, which meant additional storage capacity would be needed on a continual basis.

"One of the benefits of the system we most appreciated early on in this process was its modularity," says Armando Medina, technical director of Televisa's network broadcast operations (Canales). "As our requirements changed, we could change our Spectrum MediaPort video I/O modules from one system to another as needed. In fact, the system is so straightforward that we were able to do this ourselves without getting any of our support technicians from Harmonic or AMTEC involved. That's one of the things we like very much — that the system is set up so we can make changes like this without major difficulties. We've also appreciated that we could use various drive sizes within the same system as our capacity has expanded."

More changes came soon. A year later Televisa moved to purchase a complete HD system. DVCPRO-HD 100 would be the institutional HD video format. Meanwhile, a number of new complementary products had been introduced for use with Spectrum, including new MediaPort™ I/O modules and MediaDirector™ controllers. An additional expansion, as Televisa began working with 145 Mb DNxHD files, quickly followed and was seamlessly accommodated with additional MediaPort modules. The following year, Televisa purchased additional MediaGrid capacity, as well.

For the next three years, Televisa's broadcast operation was based on two master controls, one for SD and one for HD. That year, the engineering team concluded that efficiency and quality could be improved if these were brought together. So, Televisa purchased a new Spectrum system to accommodate a revised workflow with a single HD master control from which the SD playout would be generated by downconversion. The massive transition, achieved seamlessly with Spectrum, involved transferring all the original files from SD servers to the new HD servers, and then using MediaPort with its upconversion feature to transmit those SD files in HD.

Another massive installation of Harmonic gear was undertaken the following year with the creation of a disaster recovery site, a mirror system of Televisa Chapultepec located some 15 kilometers away at Televisa Santa Fe, a modernist campus that also includes three TV studios and postproduction facilities. Aveco automation controls the mirroring between the two systems, which supports not only disaster recovery, but also regular maintenance of broadcast operations by allowing any of the channels to be run from Santa Fe while technical improvements are being made at Chapultepec. The Harmonic PlayTool and ProDrive™ software tools are used in conjunction with the backup hardware to provide a layer of protection and backup for the regular automation system.

"I'd say that we've achieved much more efficiency with the entire process," Cosio adds. "The overall workflow is much more rapid. We've been able to maintain much higher quality because we have one file that can be used repeatedly with no degradation of quality along the way. The timeframe that it takes to perform processes now is much shorter than when we used tape. Operating in this way has been more economical, too, since less machinery needs to be maintained, there are fewer human errors, and even the amount of labor has been reduced, so we can do more with fewer operators."

Jorge Cosio,
Technical Manager, Televisa Broadcast Center

harmonic

Parallel to beginning its HD service, Televisa was transitioning to a tapeless workflow, not only in its Chapultepec master control facility, but also for production of news, sports, and telenovela serial drama programming. Now all of these are managed via file-based workflows, which have evolved considerably since the beginning of this project. With all editing now file-based, a single master copy of each program can be stored on MediaGrid using Tedial MAM, and most material is now HD throughout the signal path. One of the key factors in enabling this transition has been using Active Format Descriptors (AFD), programmed and enabled within the MediaPort systems as part of the workflow. Use of AFD allows a single file to be up- or downconverted as needed, eliminating the need for additional storage of HD or SD files within the Spectrum servers.

Armando Medina, technical director of Televisa's network broadcast operations (Canales)

Even with such efficiencies, Televisa has doubled the size of its MediaGrid installation over the years. (With the larger HDD now being used, this amounts to a tripling of capacity.) The system effectively doubled in bandwidth when it doubled in size. For the Santa Fe backup site, the latest version of MediaGrid was used, putting Televisa on its third generation of the storage system. Meanwhile, each of the four networks has gone from broadcasting two channels of audio to 16 channels.

"We transfer a huge quantity of files to MediaGrid, and that's where our editing-in-place is done, using Final Cut Pro," explains Jorge Cosio, technical manager at the Televisa broadcast center. "They edit directly in MediaGrid, then the files are put into a folder that's operated by the Tedial MAM. MediaGrid is used as a central depository and access point from which files can be pulled and then sent off for transcoding as needed. Altogether we have 12 Final Cut Pro stations doing edits in place, and 25 transcoders creating low-res proxies."

The Result

The tapeless environment enabled by Harmonic Spectrum and MediaGrid systems has had a major impact on the workflow at Televisa, not just for the master control but for everyone involved with preparing content for broadcast.

"Previously, we needed to edit on tape, which is quite complicated," says Medina. "Now this is all on a single file stored on our MAM. Before, we needed to run basically two transmissions, one in SD and on in HD. Now most of the material is HD, and where we do need SD, we're using Harmonic MediaPort to downconvert it."

"I'd say that we've achieved much more efficiency with the entire process," Cosio adds. "The overall workflow is much more rapid. We've been able to maintain much higher quality because we have one file that can be used repeatedly with no degradation of quality along the way. The timeframe that it takes to perform processes now is much shorter than when we used tape. Operating in this way has been more economical, too, since less machinery needs to be maintained, there are fewer human errors, and even the amount of labor has been reduced, so we can do more with fewer operators. Another great benefit is that we can use the low-res proxies for time sequencing of the programs, instead of having to work with more cumbersome high-res files. And we can do this just once, whereas before it had to be done multiple times."

Over the years, Televisa had multiple opportunities to buy new media servers and storage from a vendor other than Harmonic, but the company didn't. Medina explains why: "We're happy with the Harmonic equipment, as well as the service we receive from Harmonic and AMTEC. We also appreciate that Harmonic continues to improve the equipment and has brought in new functionality that meets our requirements for growth and our future needs."