NBC Sochi Olympics

CASE STUDY

NBC Olympics Uses Harmonic Video Infrastructure to Enable Seamless Remote Production for Sochi 2014

The Challenge

During the Sochi 2014 Winter Games, the NBC Olympics TV facility within the Sochi International Broadcasting Center (IBC) occupied more than 75,000 square feet and consisted of everything necessary for TV broadcasting, including studios, editing suites, a newsroom, and other workflow units. The facility took in nearly 40 OBS feeds and about 200 feeds from NBC Olympics' own cameras. In addition to supporting regular broadcast coverage, the facility had to operate in conjunction with NBC's Stamford, Connecticut, facility to produce at least 250 highlights each day.

The task at hand was to aggregate all the feeds from both OBS and NBC Olympics, get them converted to files, logged, supplied with metadata and proxy versions, and stored online and offline. It was necessary to provide remote access to the data stored in Sochi for U.S.-based producers, directors, and editors to let them review, evaluate, and edit the proxies for the next workflow stage: automated assembly of full-resolution video.

The huge amount of incoming and outgoing data, along with the need for seamless integration of all gear installed in the NBC Olympics facility, required a reliable, highly efficient, and interoperable media processing and storage platform that could be accessed conveniently by staff working both in the U.S. and in Russia.

"It's a game changer for us. Throughout the 2014 Sochi Olympics, we were able to leverage both new and existing infrastructure to establish a highly efficient and very cost-effective fast-turnaround highlights-creation workflow for multiplatform content."

Darryl Jefferson
VP of Post & Digital Workflows NBC Olympics

SOLUTION AT A GLANCE

CHALLENGE:
NBC Olympics, a division of the NBC Sports Group, is responsible for producing, programming, and promoting NBC Universal's Olympic coverage. It is renowned for its unsurpassed Olympic heritage, and award-winning production. For its fast-turn production workflow for Sochi 2014, NBC Olympics established a large TV facility within the Sochi International Broadcasting Center (IBC), from which it provided 100 or more highlights per day based on about 40 OBS feeds and 200 of its own feeds.

SOLUTION:
NBC Olympics employed Harmonic storage and server systems to support remote fast-turn content creation for its extensive multiplatform coverage of the Sochi 2014 Winter Games. The Harmonic MediaGrid system provided centralized shared storage, while the MediaDeck server systems provided on-the-fly capture and proxy generation for all incoming materials. The complete Harmonic platform granted both local and remote staff access to the full-resolution files and proxies, enabling them to review and edit them into highlights clips and sequences.

APPLICATIONS:
- Ingest of media data
- Logging
- Proxy editing
- Playout
- Online storage
- Files transfer to/from Avid ISIS storage and LTO tape libraries

The Solution and Workflow

The Sochi 2014 Winter Games represented the fourth consecutive Olympic Games, including London, Vancouver, and Beijing, in which NBC Olympics used Harmonic equipment. This year, Harmonic MediaDeck servers and a MediaGrid shared storage system were installed in the Sochi IBC and integrated with Avid Interplay and ISIS storage, a Spectra T50e LTO-5 library, Miranda Densité 2 video processors, and EVS replay servers along with the EVS IP Director solution.

"Over the past four Olympic Games, Harmonic infrastructure has been at the center of the NBC Olympics production workflow," said Peter Alexander, chief marketing officer at Harmonic. "In 2014 Harmonic media server and storage systems again have played a critical role in NBC Olympics' content creation workflow, providing the performance and reliability essential to timely multiplatform delivery of compelling content – an increasingly important element of high-profile sports coverage."

The Harmonic platform used in NBC Olympics' Sochi facility consisted of several MediaDeck 7000 servers and a 480-TB MediaGrid shared storage system. MediaDeck 7000 servers enabled the ingest of 32 incoming feeds and generated proxies for them on the fly. Ten additional MediaDeck systems were used in Stamford for recording of content for NBC Network channels including NBC, MSNBC, CNBC, USA and NBC Sports Network. Four more MediaDeck server systems, also situated in Stamford, were used for other tasks including preview and replays. A second MediaGrid system with 384 TB of storage in Stamford was connected to the MediaGrid in Sochi to form a kind of wide area shared storage system accessible to NBC Olympics staff located both in Sochi and the U.S.

The fast-turn production workflow began with the storage of incoming feeds, including 40 from OBS and 200 from NBC cameras, to MediaGrid, Avid ISIS, and other storage systems, with MediaGrid serving as central storage. Acting as ingest servers, MediaDeck systems generated proxies on the fly, making them available for both Sochi- and U.S.-based personnel. Accessed through the MAM system, two LTO-5 libraries – one large system in the U.S. and one small system in Sochi – supplied older footage for retrospectives of teams' and athletes' achievements during previous Olympic Games.

Directors and editors made edits with proxy clips, and then the system itself conformed the full-resolution footage accordingly. This approach allowed NBC Olympics to optimize network bandwidth by transferring only the full-resolution media necessary for a given piece.

One of the best things regarding workflow was that users could work with content without knowing where it was actually stored — in Sochi, Stamford, or any other NBC site. From the user's perspective, the entire Harmonic platform appeared to be a unified global shared storage system, with automated search, retrieval, and delivery of the necessary media facilitated and managed via the MAM. When identical versions of the same materials existed on different storage systems, the MAM system chose the one that could be transported with the greatest efficiency.

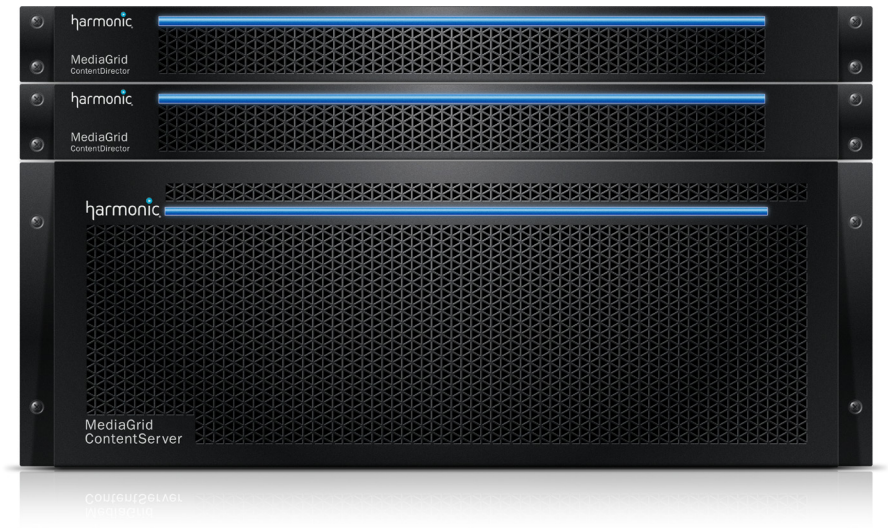
The Stamford facility recorded of 25 feeds incoming from Sochi using XDCAM-HD (50 Mbps) and H.264 (proxy) formats. Local operators were able to control is 60 record channels. The MediaGrid storage systems in Sochi and Stamford were connected via a 10 Gbps link that enabled the transfer of most files in less than a minute.

The Result

Equipped with a Harmonic media server and shared storage platform that effectively spanned two continents, NBC Olympics was able to provide its audience with top-quality broadcasts and to make more than 250 highlights a day. Using MediaDeck and MediaGrid systems installed both in Sochi and Stamford, NBC Olympics provided its staff with highly efficient tools for searching, browsing, retrieving, editing proxy-based content, and conforming full-resolution content using a high-speed connection between Sochi and the U.S. In Stamford all the incoming content was logged, enriched with metadata, stored, and made accessible to all personnel involved in Olympics production for broadcast and online distribution.

"It's a game changer for us," said Darryl Jefferson, VP of Post & Digital Workflows at NBC Olympics, referring to the innovative NBC production facility in Stamford, that has been built on technologies, including the Harmonic systems, proven in past Olympics. "Everything we built for the 2012 London Olympics is being used here in Stamford every day by NBC Sports and NBC Sports Network. Throughout the 2014 Sochi Olympics, we were able to leverage both new and existing infrastructure to establish a highly efficient and very cost-effective fast-turnaround highlights-creation workflow for multiplatform content."

Also important was tight integration of Harmonic platform with third parties such as Avid and EVS. Content stored on the MediaGrid system is compatible with systems from a wide spectrum of manufacturers in terms of access, download, processing, and repurposing, with no additional tools needed for key tasks such as transcoding and wrapper replacement. The Harmonic video infrastructure thus provided the consistent, uninterrupted content ingest, processing, transfer, and playout necessary for NBC's coverage of Sochi 2014. Moreover, it has evolved from a solution initially engineered to support highlights and content repurposing for multiplatform distribution into a full-featured foundation for all broadcast routines including ingest, logging, proxy editing, and archiving.



Harmonic MediaGrid is a highly scalable, Ethernet-based shared storage system optimized for digital media workflows.