

# NBC Olympics and Rio 2016

CASE STUDY



**Harmonic Spectrum™ MediaDeck server systems and MediaGrid shared storage enabled rapid, remote highlights creation for broadcast and multiplatform coverage of 2016 Rio Olympics**

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## The Challenge

During the Rio 2016 Summer Games (Rio 2016) from August 5-21, 2016, more than 10,000 elite athletes representing 206 countries gathered to compete in 42 sports. The broadcast offerings were complemented by extensive live and on-demand streaming coverage via NBC.com and the NBC app.

### Darryl Jefferson

Vice president of post operations and digital workflow for NBC Sports & Olympics.

In bringing Rio 2016 to U.S. viewers, NBC Olympics undertook an ambitious and unprecedented plan for large-scale, long-distance production. To accommodate as many as 30 events going on at any given time, often with simultaneous multicamera shows taking place across different sports and venues, NBC Olympics needed a robust storage system capable of supporting fast, cost-effective concurrent production by staff working at its Stamford, Connecticut, facilities, as well as at other NBCUniversal facilities across the U.S.

#### CHALLENGE:

NBC Olympics planned comprehensive coverage of the Rio 2016 Summer Games via broadcasts across the NBC Universal family of networks and streaming media channels offered via the network’s website and mobile app. To create this massive volume of content — and to do so cost-effectively — NBC Olympics needed a dense, reliable storage infrastructure capable of capturing, storing and making media available to an array of parallel workflows and many simultaneous users working from a variety of remote sites.

#### SOLUTION:

Harmonic Spectrum™ MediaDeck media servers deployed in Rio facilitated on-the-fly capture and proxy generation for all incoming materials. Harmonic MediaGrid shared storage systems in Rio and at NBC Olympics’ headquarters in Stamford, Connecticut, provided centralized shared storage with tremendous bandwidth and capacity. Together these systems supported an Avid MediaCentral asset management portal used in concurrent production workflows to access content efficiently and to generate a record-breaking amount of linear and nonlinear content from Rio 2016.

#### APPLICATIONS:

File ingestion, Logging, Proxy generation/editing, Online storage, Playout, File transfer to/from Avid MediaCentral asset management portal

## SOLUTION AT A GLANCE

## The Solution

“Through every iteration of the games, I’m amazed at the level at which we are producing content and at the massive amount of content consumed,” said Darryl Jefferson, vice president of post operations and digital workflow for NBC Sports & Olympics. “In London 2012 we did a lot of broadcast and multiplatform coverage, but still we were surprised by the level of interest and volume of consumption. We saw clearly that the appetite is there to consume Olympics content in a variety of formats and flavors.”

To support the massive scope and scale of Rio 2016 production for linear and nonlinear outlets, NBC Olympics built an array of parallel workflows, all with access to an Avid MediaCentral asset management portal that provided access to the growing files on Harmonic MediaGrid shared storage system.

Harmonic Spectrum MediaDeck media servers deployed in Rio simultaneously recorded as many as 60 incoming venue feeds as both XDCAM-HD at 50 Mbps and H.264 low-resolution proxy. NBC Olympics staff in Stamford also had independent control over 60 additional channels of local ingest. The MediaDeck systems facilitated on-the-fly capture and proxy generation for all incoming materials and gave each record event a unique ID. Details such as the sport, event, round, heat and competitor names, all included in the original ScheduALL work order, traveled along with the video in an XML file, ultimately populating the asset management system. Each recording’s proxy was written in near real time to a local 960-TB Harmonic MediaGrid storage system at the International Broadcast Centre (IBC) and, about 40 to 50 seconds later, to a second 920-TB MediaGrid system in Stamford, connected via two 10-Gigabit Ethernet connections. Teams of loggers in Stamford continually added metadata about specific events and inserted time-based markers.

In addition to providing critical infrastructure, Harmonic delivered a team to support its equipment throughout the Rio 2016 Summer Games. “Harmonic sent a whole battalion of knowledgeable people to make sure that our gear worked properly. If there was mishandling in transit or issues as a result of power fluctuations, experts were standing by in both Rio and Stamford to fix, refresh and switch out parts as necessary. Those folks were in the trenches, living and working alongside us for two weeks. Not every vendor does that. It counts to have partners who stand with you,” continued Jefferson.

## The Result

Harmonic Spectrum media servers and MediaGrid storage, combined with the asset management portal, were used to support network production including daytime, prime time and late night shows; cable production by 10 different NBCUniversal channels and various specialty sport channels; digital-only productions; the Gold Zone, a collection of the best live action of the moment; a hyperfocused gymnastics program; and all web, mobile, live streaming, STB, TV everywhere and XFINITY MVPD delivery.

NBC’s profiles and features group and its news division also peered into this portal, as did teams from the Golf Channel and Telemundo, for both linear and nonlinear content creation. Production teams used the portal to access content and turn around segments for live programming or to grab highlights for a wrap-up show or professional analysis. Even on-site production teams at remote venues — swimming, athletics, gymnastics, beach volleyball, golf — could log in, look into this colossal store of content on the MediaGrid storage system, and pull content to complement the action being recorded live. At any given time, 100 simultaneous users worked through the browser-based interface to find content and send it to any editing platform or EVS server system for layout.

The extensive live logs and stats, scoring and timing information embedded as metadata enabled users across NBC Olympics and NBCUniversal to create shot lists, which in turn were automatically conformed in one of two ways: in proxy resolution for streaming along with live multiscreen services, or in high resolution for craft editing in Stamford and at other NBCUniversal facilities. Through the same portal, users had access to nearly 300,000 hours of archive content from the MediaGrid system, as well as the ability to mark clips for delivery to themselves. Directors and editors worked with proxy clips, and the system itself conformed the full-resolution footage accordingly.

NBC Olympics streamed all of the competition from Rio, and the network brought scores of people — researchers, producers and experts on specific sports — into its Off Tube Factory to provide knowledgeable insight and color for live programming, both broadcast and on web and mobile platforms. Working in parallel, a unit in Stamford cut packages for STB delivery for MVPDs and for Comcast XFINITY and TV everywhere customers. The short-form content was cut in Stamford; long-form content was cut in Englewood Cliffs, New Jersey, and all of it was delivered to a “meet point” in Denver where Comcast/other MVPDs could readily grab it. The Highlights Factory ran in parallel to create VOD clips for web and mobile access. Clips that drew a lot of views often were sent to other platforms, such as MPVDs, for further distribution.

“For Rio 2016 we had a complex coordinated coverage strategy with many legs that we needed to keep moving smoothly in parallel,” said Jefferson. “From the opening to the closing ceremony, our coverage of the Games of the XXXI Olympiad was a symphony of moving parts. To do all of this at once and have it go off successfully was our biggest challenge, and the most fun and rewarding part of these Summer Games.”

Over the course of 17 days, NBC Olympics used its Harmonic MediaGrid shared storage infrastructure to record and store 9,267 hours of content, a new record for the network’s coverage of the Games.