



# EVS at the Summer Games

## Host Broadcast Media Server and Related Applications

### Overview

In April 2007, EVS signed a contract directly with the Olympic organization to provide the equipment for the International Broadcast Centre in Beijing. In addition to the Host Broadcaster BOB, EVS is working closely with the different Rights Holder Broadcasters to provide them with integrated production solutions.

Since it was first involved in the production of the Olympics in Atlanta in 1996, EVS has greatly increased its production capabilities. In 2008, EVS solutions will be central to the first ever fully High Definition Olympics, and the company's broadcast equipment will be key in making images of the action in China available to billions of viewers around the world.

### Main Applications

EVS technology is heavily involved in all of the facets of the broadcast production of the Beijing Olympics. EVS live and near-live production systems will be used for following three main applications:

#### 1. *Outside Broadcast (OB) production at the different venues*

All High Definition (HD) OB trucks in charge of the live feeds production will be equipped with EVS production servers and related software applications for live recording of multiple cameras, live replays, slow motion, and highlights editing.

In total, there will be 60 outside broadcast trucks provided by worldwide OB companies to cover the event. For instance, the Belgian company Alfacam will be providing a total of 20 HD OB trucks, most of which will be equipped with up to seven EVS HD XT[2] servers for the live recording process as well as the renowned slow motion replays.

#### 2. *Host Broadcast Media Server at the International Broadcast Center (IBC)*

This will be an integrated media server based on a cluster of EVS 22 HD XT[2] production servers combined with software applications to allow recording of all HD feeds originated from the different venues; to manage metadata and indexing (logging system) of all incoming feeds; archiving of all media; and the set-up of a media sharing network which will allow the BOB production teams and the Rights Holder Broadcasters to browse the database and retrieve any footage required for their unilateral operations. The footage will be simultaneously recorded and available in both hi res and lo res formats.

#### 3. *Rights Holder Broadcasters (RHB) production facilities*

EVS is also involved in the organization of the production workflows of many broadcasters present covering the Beijing from the IBC or from the main production basis, allowing them to manage their respective live and near-live production during the Games. The workflow provided will vary according to the requirements of each RHB, and will generally include the following applications: multi-feed recording, instant previews, metadata management (logging and browsing), online editing, transfer to post production station (Avid, Final Cut Pro), and playout control.

### EVS Main Applications

#### Outside Broadcast

- 60 OB vans
- 1000 cameras recording

#### Host Broadcast

- 100% HD Tapeless Media Server
- 100 IPDirector workstations
- IOC Tape Archive Indexing
- BOB / EVS service agreement

#### Rights Holders Broadcasters in IBC

- Browsing into media Server
- 150 IPDirector workstations
- Post-production integration

## Beijing Olympic Broadcasting Main Production Workflow

The central media server installed in the center of the IBC aims to record up to 40 simultaneous live feeds produced in the OB facilities, and two additional ENG feeds, for sports and competitions that are not covered live.

The media server is composed of two independent clusters of 22 servers, one recording in high resolution HD signal in Avid DNxHD® codec (at 100 Mb/sec), the second in low resolution SD (at 6Mb/sec). The main hi-res server can support an online storage of about 100TB (1,600 hours) while the lo-res server supports up to 33TB storage (about 4,500 hours).

All the content recorded on the EVS instant media server (simultaneously on the lo-res and hi-res servers) will be logged with associated metadata by 42 logging stations (using IPDirector logging stations), allowing users to retrieve media easily during the production. In total, 2 millions logs created and stored on a central database will be managed during the Games. A large number of operators and users will be able to access the central media server simultaneously for browsing, reviewing, selecting, and transferring media to their local production and post production facilities.

There are two main groups of operations based on the media server:

1. **Multilateral Operations:** This represents the highlight programs production managed by BOB production team and dedicated to international community of broadcasters and the Right Holders.
2. **Unilateral operations:** This includes the production of specific highlight programs, managed by the different Rights Holder Broadcasters from their IBC studio.

### Multilateral

Multilateral productions, managed by the BOB team, include the production of three main programs based on an EVS workflow: the Games Summaries, the Daily Summaries, and the 24-Hour Olympics News.

#### 1. *Games Summary*

The Games Summary is a 1-hour summary program played out on the 24<sup>th</sup> of August, right before the closing ceremony. The production workflow consists of an IPDirector logging station to select and review media throughout the media server. The browsing will be managed on the lo-res media server, allowing faster and easier research. After selecting the desired media, the operator will create small clips on the IPDirector station and will transfer the hi-res media on a Final Cut Pro station to prepare the final edit.

#### 2. *Daily Summaries*

The Daily Summaries are multiple daily summary programs of 55 to 58 minutes produced by BOB team and proposed to the different Rights Holders. BOB will broadcast three programs each day: one for the day competition, one for the evening, and one for the competition not covered by live means (ENG). The workflow for production of daily summaries integrates 5 browsing stations (lo-res search and review based on keywords); the creation of clips on IPDirector stations; the transfer of hi res HD clips on an EVS central storage (with a capacity of 200 hours of HD) linked to three EVS CleanEdit non-linear editing stations used for the edit of the summaries. Once created and approved by the editorial team, the summaries are transferred on the central media server where they will be played out under the control of the IPDirector.

#### 3. *24-Hour Olympic News*

The 24-Hour Olympic News is a special 30-minute Olympics news program played out in loop mode on the Olympics channel during the Games. Although the production workflow of the 24 Hours is similar to the Daily Summaries in terms of using CleanEdit for the news edit, the playout is managed and controlled from an independent EVS XT[2] production server.

### BOB Instant Media Server

#### Recording Feeds

- 40 simultaneous feed recording
- 2 ENG feed

#### Online Storage Platform

- 22 Hi-Res HD XT[2] servers
- Record in Avid DNxHD® codec
- 22 Proxy XL[2] servers

#### Metadata management

- 42 IPDirector Logging stations
- IPDatabase 2 millions logs

#### Online Storage Capacity

- 1600 hours Hi Res (99TB)
- 4500 hours Lo Res

# BEIJING OLYMPIC BROADCASTING INTEGRATED PRODUCTION WORKFLOW

**INGEST  
40 LIVE FEED  
+ ENG**

**Hi-Res server**  
22 XT[2] with 15x300 GB (99TB)  
1,591 hours at 100 Mbps  
Avid DNxHD® Codec

**Proxy server**  
22 XT[2] with 5x300 GB (33TB)  
5,729 hours at 6 Mbps

42 IPDirector Logging Stations  
IPDirector Database  
2 Mio Logs

**DNxHD File Transfer**

**1 Browser**

**DNxHD File Transfer**

**5 Browsers**

**DNxHD File Transfer**

**5 Browsers**

**Archive Browser Dump**

**Export to TLMS**

**Game Highlights**

XStore[2] Transcoder ↔ DVC-PRO HD ↔ Final Cut Pro Game Highlights

**Game Daily Summaries**

Central Storage SAN 200 Hours  
Summaries Creation System 3 CleanEdit  
**ENG Ingest**

**24h Olympic News**

Central Storage SAN 200 Hours  
24h Olympics News San 200h + 2 CleanEdit  
DNx HD → Hi-Res Server XT[2] with 5x300 GB  
**Hi-Res Playback**

**Archive & Labelling**

IP TLMS → **6 clients**

## Rights Holders Broadcasters Media Server Access

All Host Rights Broadcasters are offered the possibility to access different types of material provided by the BOB media server for their production and post production requirements. BOB is offering four different options able to fit with the HRBs production and post production facilities:

### *Option 1: Logging Feeds Access*

Broadcast partners will be able to access logging information created with the IPDirector by the BOB team at the IBC. All logs are centralized in the IPDirector database and can be forwarded in real-time based on the XML file format. Broadcast partners using this option will be able to associate keywords metadata with the A/V feeds they will have recorded.

### *Option 2: Lo res browsing*

The broadcast partner will be able to browse and access all media recorded on the media server in lo res format. Using the IPDirector, any broadcast partner that chooses this option will be able to organize research using all keywords and logging information. The system will be limited to review actions.

### *Option 3: Lo res browsing, Hi-res SD and HD Payout*

The broadcast partner will be able to browse and access all media recorded on the media server in lo res format. Using the IPDirector, the broadcast partner choosing this option will be able to organize research using all keywords and logging information. Once the media is retrieved, the broadcast partner can create a clip using the IPDirector and manage the transfer of this selected clip on a local XT[2] production server in hi res for payout or highlights production. The transfer process from the media server will be managed through the gigabit Ethernet network.

### *Option 4: Lo res browsing, Hi res Payout in SD and HD*

With this option, the broadcast partner will be able to browse and access all media recorded on the media server in lo res format. Using the IPDirector, the broadcast partner will be able to organize research using all keywords and logging information. Once the media is retrieved, the broadcast partner can create a clip using IPDirector and manage the transfer of the selected clip on a local XT[2] production server in hi res. The transfer process from the media server will be managed through the gigabit Ethernet network. In addition, all selected media will be transferred on the XStore[2] central storage platform equipped with the CleanEdit non-linear editor, for fast and intuitive highlights production.

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