



## NBC Streamlines Vancouver Olympics New Media Operations With Omneon Media Storage, Processing, and Distribution Platform

### NBC Background:

Seeking to maximize U.S. viewership of the 2010 Vancouver Games, NBC complemented its traditional broadcasts on five networks with a vast array of media delivered to a bouquet of secondary outlets including the NBCOlympics.com Web site, IPTV, video-on-demand services, and Web streaming portals, among others. In order to monetize these secondary markets more efficiently — and to help offset the cost of broadcasting the Winter Games — NBC sought to implement a simpler, more streamlined “capture once, publish many” approach to creating content for new media outlets.

### The Challenge:

To monetize secondary markets effectively, NBC took on the fundamental challenge of expanding its production operations to provide content to multiple new media outlets without incurring a corresponding per-outlet increase in both production processes and costs. This approach required that NBC eliminate the replication and operation of new media production in parallel to the traditional broadcast workflow. Rather, the network required a proven solution for tapeless capture and live and near-live production that could integrate with a high-capacity media storage and processing platform to support the straightforward republication of the network’s primary content for secondary markets with the least amount of work.

Key considerations for this system were the quality of the production solution, the capacity and interoperability of the media storage and processing platform, file-format compatibility across the workflow, the efficiency of media processing and transfers across NBC sites in Vancouver and New York City, and ease of media accessibility for those producers and editors working with stored content.

### SOLUTION AT A GLANCE

*An integrated storage, processing, and high-speed content distribution platform from Omneon joined up with EVS production servers and Avid® edit systems to form the foundation for a single file-based workflow that supported NBC’s HD broadcast of the 2010 Vancouver Games. In doing so, the platform also enabled a highly efficient “capture once, publish many” model that streamlined the repurposing and delivery of content to various new media outlets.*

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## The Solution

NBC's proprietary OTTO workflow management engine oversaw operation of the Vancouver Highlights Factory from end to end — across NBC sites in both Vancouver and New York City. On the front end of the workflow, OTTO connected into the EVS IPDirector database supporting EVS XT[2] production servers and the EVS IPDirector suite, including the IPEdit on-the-fly editing solution, comprising the Vancouver edit pool. Live HD feeds were recorded natively as Avid DNxHD files to the six-channel EVS XT[2] production servers used for HD live and near-live ingest, production and playout. Also linked via the IPDirector database, a ScheduALL system managing competition schedules fed data to a Cyradis real-time device control system triggering clip creation on the EVS systems.

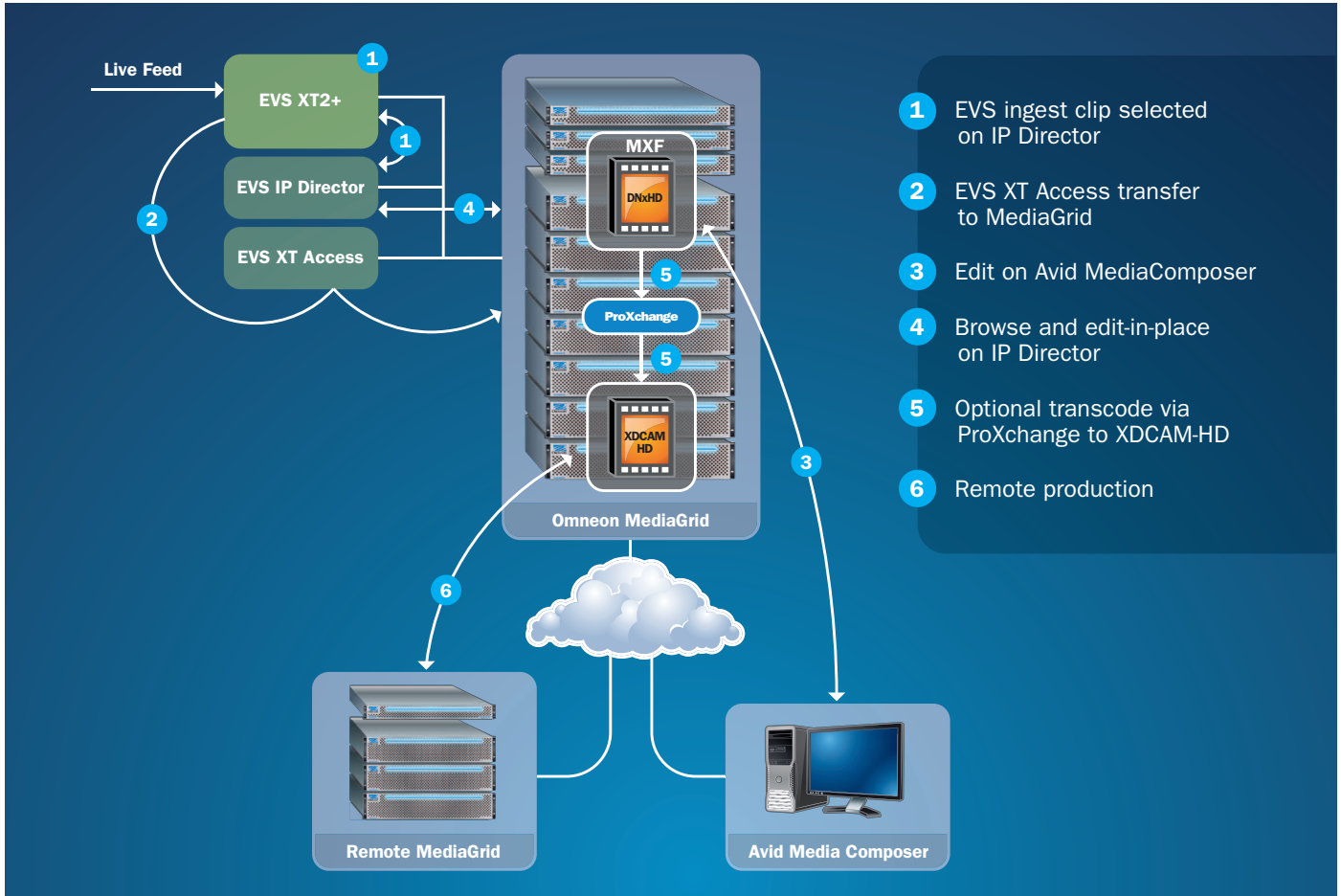
The EVS XT[2] servers combined with EVS' XTAccess gateway software and watch folder solution to enable file exchanges with a 144-TB Omneon MediaGrid active storage system, which in turn made stored HD media available both to the EVS edit pool and to an Avid edit environment via an Interplay workgroup. The Omneon MediaGrid leveraged Omneon ProXchange to transcode edited content for rapid delivery via the Omneon ProCast CDN content distribution system to NBC's "30 Rock" facility in New York, where a second Omneon MediaGrid system provided 36 TB of storage for a smaller but very similarly configured EVS and Avid production environment used for encore clipping. The OTTO workflow engine connected with the Omneon MediaGrid, EVS IPDirector database, and MICAH transcode and publishing system in New York to manage the tail end of the workflow and ensure delivery of finished segments from Vancouver and New York to NBC Olympics' new media outlets.

## The Workflow

During the Winter Games, 33 incoming live feeds from the host broadcaster and from NBC networks (NBC, MSNBC, CNBC, and USA) were recorded with 18 EVS XT[2] production servers using the Avid DNxHD codec at 100 Mbps. This content was immediately and automatically copied to the Omneon MediaGrid as self-contained MXF OP1a files via XTAccess gigabit Ethernet gateways. While each EVS XT[2] server stored a day's worth of competition video, all HD content accumulated over the Winter Games was stored on the Omneon MediaGrid and, in turn, made instantly available both to the EVS edit pool and to the Avid Interplay and Unity systems used to produce highlights packages for broadcast coverage. Because the IPDirector made stored content on the Omneon MediaGrid and EVS systems available through a single view, as if it were all stored on the EVS system, live production staff had the option of pulling content or prepackaged pieces from earlier days and integrating them into the on-air broadcast.

As live content was recorded to EVS servers, one Highlights Factory production team used IPDirector systems to screen video, tag notable clips with rich metadata, and build simple cuts-only packages from high-resolution content while another edit team created more complex packages using IPEdit systems. Once these packages were approved by a producer, the clips within the edit list were automatically flattened by the XTAccess system, wrapped as individual MXF OP1a files, and moved onto the Omneon MediaGrid. Newly edited pieces created on Avid systems likewise were stored to the Omneon MediaGrid, where they became available to the EVS edit pool.

Omneon ProXchange leveraged the grid-based architecture of the Omneon MediaGrid system to transcode finished clips and packages from DNxHD OP1a-wrapped files into Sony XDCAM HD422-compatible 50-Mbit long GOP files — the house format used by NBC's New York facility — at faster-than-real-time speeds. This transcode in Vancouver enabled NBC to reduce file sizes by more than half, in turn halving the bandwidth required for the Omneon ProCast CDN to transport the resulting media nearly 3,000 miles over a dedicated AT&T™ OC-12 circuit to 30 Rock's 36-TB Omneon MediaGrid system.



*EVS & Omneon MediaGrid Integration*

Once stored on the Omneon MediaGrid in New York, files became available to EVS IPDirector edit systems for creation of encore packages, all stored back onto the Omneon MediaGrid system along with files from Vancouver. The OTTO workflow management engine was connected to the New York Omneon MediaGrid to track the progress of clip creation, and also to NBC's proprietary publishing system, MICAH, which completed the workflow by pulling content off of Omneon MediaGrid and passing it through Rhozet servers for transcoding and delivery to NBCOlympics.com, mobile providers, EST outlets, and the network's SD and HD VOD services.

## The Result

The production model deployed by NBC to deliver both its broadcast product and content for new media outlets achieved a high level of efficiency by capitalizing on interoperability among server, edit, and storage systems working with commonly supported file formats. A single file-based infrastructure thus was able to meet a variety of production requirements — the speed and versatility required for live production, as well as the easy media access across the workflow and rapid transfers required for fast production and distribution of highlights and encore packages to secondary markets. In implementing this model, NBC was able to eliminate parallel production chains and duplicate processes, instead using a common environment to complete all of its production activities faster and more cost-effectively.

The success of this model, the result of significant collaboration and engineering by NBC, Omneon, EVS, and Avid, demonstrates that any company involved in the production of large complex events — even those that are geographically distributed — now has access to a high-performance file-based workflow that minimizes the resources, on-site personnel, and time required for delivery of media to virtually every outlet.

■ CASE STUDY



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