Designed to Perform

Case Study

A New Workflow for Sports & Entertainment Production with NRK's OB HD1

OB HD1 – NRK's State-of-the-Art OB Truck

The Norwegian Broadcasting Corporation (NRK) is Norway's largest media house and one of Europe's most successful broadcasters, employing 3,500 people in 57 offices around the world. The government-owned broadcaster financed by both license fees and advertising, provides public service broadcasting throughout Norway. Every day 85% of the population consume one or more of NRK's offerings, whether on TV, radio, the internet or other platforms.

Its main state-of-the-art OB truck, OB HD1, supports multiple video format standards and can operate up to 20 cameras. Equipped with two production switchers and seven XT series servers from EVS, including the latest XT3, it can produce both a major international broadcast and a national broadcast at the same time.

Since its first deployment at the 2006 Winter Olympics in Torino, OB HD1 has been used at some of the world's most high-profile events. In 2008 it was rented by the host broadcaster for the Summer Olympics in Beijing, as well as being used at the world's largest non-sporting television production, the Eurovision Song Contest in 2010. Other recent productions include the 2011 Nordic World Ski Championships, the 2011 Nobel Peace Prize Concert in Oslo, the 2012 Ski Flying World Championships in Vikersund, and the 2012 Biathlon World Cup in Oslo.

Customer Requirements

For today's fast-paced productions, NRK needed a very fast and efficient workflow that would enhance their HD broadcasts with OB HD1. The solution needed to be flexible with the ability to adapt to any production requirements.

They wanted a solution that would give operators the tools to tag and find content quickly and effortlessly, with instant sharing of content between production servers. It also needed to provide instant and seamless sharing of content between the live production and Apple Final Cut post-production tools to enable content to be edited immediately during ingest.

NRK also needed a solution that would be able to transcode content to their preferred codecs for archiving purposes. Finally, the solution had to be able to handle a future parallel low-resolution workflow giving reporters, news editors and script supervisors at TV House in Oslo, remote access to content on the OB truck's production servers.

The Solution

With several EVS production servers already providing a tapeless workflow for OB HD1, NRK decided to take advantage of the XNet2 network for sharing content and LSM controllers for live logging. To enable efficient sharing with post-production, NRK made use of the EVS production servers' ability to record and replay instantly, while at the same time sending files instantly to an XStore NAS. Apple Final Cut editing units could then be used to edit files on the XStore. NRK chose the IPDirector content production and management suite to control ingest on EVS production servers, manage files on the XStore, and eventually, trigger transcoding of content for archiving purposes using XTAccess, a GigE gateway tool, and XF2 removable hard disk drives.

In Action at the 2012 Biathlon World Cup at Holmenkollen

Ingest with keywords for fast research and replay

The EVS solution was deployed at the 2012 Biathlon World Cup at Holmenkollen, which took place in Oslo over three days in February. Feeds from various cameras at the venue were ingested into the EVS production servers. Nine channels were allocated to regular cameras for slow motion and replays, with an additional six channels for two super slow-motion cameras. Four LSM operators used the ingested content to show slow-motion replays and follow-ups, and create highlights during live production. The production servers were interconnected on an XNet2 network so the LSM operators could instantly share content without having to copy or transfer clips between servers.

To enable the operators to find the best content as quickly and easily as possible, NRK made use of the LSM solution's extensive metadata functionality. Operators would log content live with a keyword grid directly on the LSM controller to facilitate fast searches for content in the live production. An IPDirector was used to control ingest across the production servers as well as to manage content on the servers and the XStore NAS.

Magne Sivertsen, system engineer at NRK, explains: "In today's productions it's just too time-consuming to search for content that's not properly tagged. Before production begins we define a list of keywords that's distributed on the network. LSM operators use these keywords to tag the clips they created directly on the remote. With so many cameras in use and a flood of images rushing through the system the most efficient workflow is for the operators themselves to tag the clips with the LSM for easy sharing and retrieval between users."

NRK also tested its future parallel low-resolution workflow for remote access to content on OB HD1's production servers. Sivertsen explains: "The low-res workflow we tested is a tool for browsing content on the EVS servers. During the test period we used IPDirector for browsing, but later we'll be using the new web browser from EVS IPBrowse."

Post production

The ProRes 422 codec was used throughout the workflow so that content could be edited natively in Apple Final Cut. Through the use of simple network share-folders, clips were instantly transferred from EVS production servers to the XStore, which was used as the NAS for Final Cut post-production. The editing process could be

started as soon as the files came into the XStore. NRK also set up transfer rules within IPDirector so that super slow-motion clips were automatically transferred to the XStore.

With the EVS IPLink plug-in for Final Cut, editors have a complete overview of the IPDirector database and the corresponding files straight from within Final Cut. This greatly improved searching capabilities using all available metadata sets.

Playout

NRK uses the EVS FCP Exporter plug-in to facilitate the process of exporting Final Cut sequences to the EVS production server for playout. The edited content was simply dragged to a drop-folder and then automatically transferred back to the production server via the XStore.

Fibre optic cable had been installed at the Holmenkollen National Arena for the 2011 Nordic World Ski Championships. NRK took advantage of this to stream the live production as uncompressed SDI signals to TV House in Oslo, and transfer files between the EVS production servers and TV House.

Magne Sivertsen explains: "During sports productions in Holmenkollen we can send data to NRK HQ, as well as all the programme feeds and returns from the studio on the fibre optic cables. For us, being able to use greater bandwidth for signals, results in better quality and a more stable transmission."

At TV House NRK has started to use IPEdit, a live editing module within the IPDirector suite, to shorten the length of programmes. Sivertsen explains: "We used to do this with two LSM controllers and compile the material we wanted to use in a playlist. With IPEdit we're removing the unwanted parts of an incoming feed instead of adding them to a playlist. This is far more effective and IPEdit gives us a better GUI than the remotes, and also the ability to handle audio-splits and transitions, in a far more controllable way than with the remotes.

Archive

In OB HD1 an IPDirector was used for media management and XTAccess for transcoding content to the XDCam HD format. The files were then stored on removable XF2 disks where they would be transferred at a later stage to the central storage at TV House.

On other multicam productions using OB HD1, content from cameras is stored on removable XF2 disks in the ProRes 422 format and transferred to an XSAN at TV House for post-production. All the finished programmes are archived in the XDCam HD format at the central storage.

Key Benefits

- Flexible solution that can adapt to any production requirements
- Fast and easy logging and browsing based on keywords
- Powerful networking providing instant access to media
- Slow-motion and super-motion live replays
- Outstanding reliability of EVS production servers
- Fast and seamless integration between the EVS production system and Apple Final Cut post-production
- Extensive capacity of the XStore nearline storage
- Efficient IPDirector ingest management and transcoding of content for archival purposes
- Easy backup with removable XF2 disks and XTAccess gateway software

Magne Sivertsen, system engineer at NRK

"The keyword functionality of the EVS solution is essential to us in fast-paced sports productions. Without keywords we would be completely lost. In today's productions, with so many cameras in use and a flood of images rushing through the system, it would be impossible to find the best clips without searching for them by keywords."

"Our EVS solution is flexible and can adapt to any production requirements. It's very fast and precise both in slow-motion and play-out. The EVS server is very reliable and we never experience any downtime. The system has great functionality, stability and interoperability. We can easily connect different units and share content."