

Case Study

BTV Post Completes World's First 4K Digital Cinema Frame Rate Conversion From 25p to 24p With Snell's Alchemist OD



Alchemist OD is the first product to utilize Snell's On Demand technology, a media processing framework that provides instant access to its signal processing algorithms in file-based, virtualized broadcast and digital media environments.

Post-production Company Uses Snell's Alchemist OD to Convert Muse 4K Ultra HD Concert

The Customer

BTV Post is a cutting-edge production facility, leading the way in post-production, digital media solutions, and video editing. A specialist in HD, 3D, and 4K content, BTV Post delivers on behalf of the world's most prominent production companies across all genres, standards, and formats. In 2004 it opened its doors to Brighton's creative and digital media community, growing rapidly to attract an international client base, as well as a diverse range of creative producers around the world. In 2010 BTV Post opened a second facility in London, Soho, aimed at putting it at the forefront of stereoscopic 3D, digital media services, and traditional post-production. More information is available at www.btvpost.com.

The Challenge

Serpent Productions commissioned Dutch service provider United to record the concert in both HD and 4K simultaneously using Sony F55 cameras. The HD post work was carried out at London post house The Joint in 25p, and the 4K 25p work was done at United in Hilversum, "but the decision to do the 4K online for digital cinema was contingent on being able to do a 4K 25 to 24p conversion," said BTV Post's CTO, Jon Lee.

"Getting a low temporal rate conversion that is good has been pretty elusive. You can get very good motion estimated conversion if you go from a source with a high temporal rate (50/60i or 50/60p), but as soon as you start working with progressive low frame rate sources, motion estimation is significantly harder because the distance between the input frames is much greater," he explained.

Of course, you could just slow it down, "but you lose half a semitone, changing the artists' performance, and you make it longer. In our experience, the artists are not happy to have that done.

"You can pitch correct it, but that, like standards conversion, is an art to do and you still end up with content that is longer than the original," he added.

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The Snell Solution

"People are always asking for low temporal rate conversions, but previously the conversion was very obvious," particularly during pans or other camera moves. So far BTV has completed six or seven low-temporal rate conversions with Alchemist OD, mainly for music or for documentaries shot at 25 or 30p, or preparing 24p films for DVD and TV. The Alchemist OD workflow dovetailed seamlessly with BTV's 4K Mistika postproduction pipeline.

One important factor in the move to Alchemist OD is that it is a file converter, so you don't need to go out to video first. This also means it isn't restricted to SD or HD, but can easily do 2K or 4K as well. In this case it used DPX files (in and out), which took a lot longer for the 95-minute concert than it would if it were HD, which is close to realtime, but the DPX 4K files were about 10 times real time. "The hardest part wasn't anything to do with Alchemist, but the sheer size of the DPX 4K files. The bottlenecks we had were related to data transfer, not the Alchemist OD itself."

The conversion "was pretty much there. There were a couple of tweaks we did along the way, but it was by far the best low temporal conversion we've seen. In terms of the content itself, it performed the way we wanted it to. The artists were very happy with it."

Before this, "low frame rate motion compensated conversion has been possible, but not possible to do very well. But now it is. The clients we've shown it to have said that, hands down, it is the best they have seen."

It used a pre-production prototype for the conversion, but Alchemist OD should start shipping in mid-November, by which time he expects the HD conversions to be pretty much realtime. BTV has already put in an order for one. It already has an Alchemist Ph.C-HD standards converter, and the OD will replace this.



"As 90% of our work either starts, stays in or ends in the file domain," it was an easy decision to make. The traditional Alchemist either requires two edit suites to play in from and record back to, or the use of Snell's FileFlow (or some other ingest/playout equipment), but OD completely eliminates that. "Staying in the file domain will save half to two-thirds of our time (if it is realtime in HD). As it works across the network, it will also save on copying time."

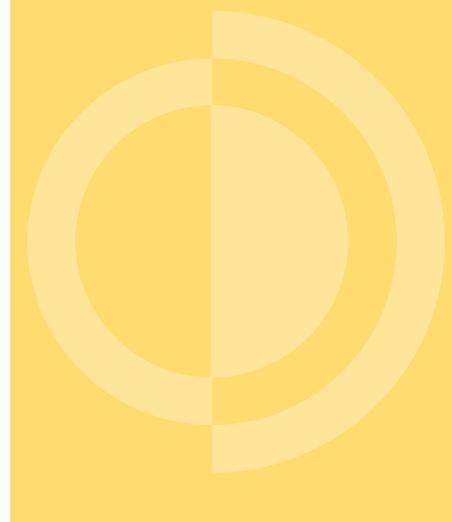
Alchemist OD is the first product to utilize Snell's On Demand technology, a media processing framework that provides instant access to its signalprocessing algorithms in file-based, virtualised broadcast and digital media environments. Snell hopes that this will allow users to rapidly enter new markets and create new services that could open up additional revenue-generation opportunities. It should also enable cost savings through the use of standard IT hardware.

The Results

The Muse concert will be released in UK cinemas in 4K on November 5, 2013. More information about Muse is available online at <http://film.muse.mu/gb/>.

"This sets a new benchmark for the conversion of performance content for digital cinema, and films for television and DVD, without ever needing to slow down or speed up again. Working closely with Snell's engineering team, we have come up with workflows to get a low frame rate conversion that is virtually indistinguishable from the original content."

Jon Lee, BTV Post CTO



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