



Feature sponsored  
by Snell

Never before have viewer expectations been higher for live television. With the growing sophistication and affordability of home theatre systems and HD TVs, today's live programming offers a cornucopia of delights for anyone who enjoys watching live events as they unfold. And now, with the advent of 3D TV, that viewing experience is about to become an order of magnitude richer. In the near future, live television may be the driver for a new brand of entertainment economics: why shell out large sums of money for arena tickets when you can have very close to the same viewing experience in the comfort of your living room? **John Carter**, product manager, switcher product group for Snell, reports.

# Flexible switching solution for OB

Everything outlined in the introduction, of course, has placed unprecedented pressure on broadcasters, production companies, and the outside broadcasting equipment and truck providers they contract with - and in an economic climate that is less than ideal. Although the drive to offer 3D content may be lurking just around the corner, many (if not most) of today's broadcasters are still focused on migrating to HD operations - and they will be for some time to come. Even without the added budgetary pressures brought on by the recession, converting immediately to a native HD production environment simply isn't feasible for many content providers and broadcasters. The reality is that many content sources will continue to exist in SD format for the foreseeable future, and any OB HD operation must take them into account. For a live HD broadcast, therefore, the production must be able to work with not only the live feeds from HD and SD sources, but any archival content to be mixed in to the production.

Adding to the burden on today's



**Broadcasting an event requires the ability to produce the live feed for linear television, plus formats to support a variety of media outlets spanning multiple viewing screens in and out of the home.**



broadcasters is the movement towards multi-platform content delivery. Not only are viewers raising their quality expectations for home viewing of live events, but they're expecting to be able to receive the content on mobile devices and computers through services such as video-on-demand and Internet TV. Thus, broadcasting an event requires the ability to produce not only the live feed for linear television, but formats that can support a variety of media outlets spanning multiple viewing screens in and out of the home.

The beating heart of any live on-site operation - and the key to addressing these challenges - is the production switcher. With so much riding on switching capabilities, broadcasters and production companies should consider several key factors when choosing switching equipment for live on-site production operations. We will discuss some of those factors in this article.

## Built-in flexibility

Flexibility is probably the most important attribute for a production

switcher that can fully support today's most complex OB operations - and it might mean different things to different players in the live broadcast chain. For production companies and truck providers, flexibility means the ability to adapt quickly and on the fly to the unique requirements of particular genres of events. For instance, the truck might be deployed one day to cover a football match, and then the next day to cover a rock concert that has completely different requirements in terms of numbers and types of cameras, required graphics, and other elements.

For broadcasters seeking to make a smooth and cost-effective transition to HD operations, the task of putting a live show on the air often boils down to format flexibility. Thus, the production switcher's ability to handle a multitude of format inputs - and to output multiple formats for a variety of uses and platforms - becomes a key deciding factor in evaluating switching technology. Again, the ability to rapidly configure the switcher on-the-fly to meet unexpected live production requirements comes into play; take, for instance, a last-minute opportunity

to add a less expensive SD camera feed for a live HD concert production. On the output side, the switcher must be able to offer a variety of output feeds in order to meet all of the creative requirements of the production.

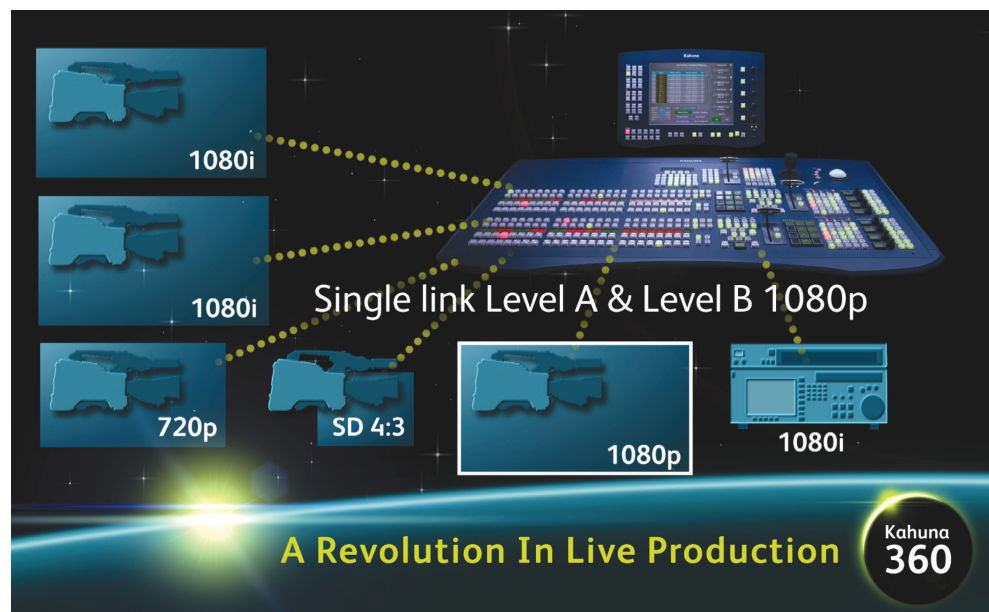
Today's most robust switcher platforms are designed to adapt quickly and easily to the requirements of any type of outside broadcasting production, whether live news, sports or entertainment events, or multi-screen presentations. These switchers employ live assist and workflow tools to streamline operations and reduce the likelihood of error, enabling the turnaround of content in seconds and enabling operators to re-configure entire studios and trucks for different productions almost instantly.

With powerful multi-format capabilities such as the proprietary FormatFusion3 technology built into Snell's new Kahuna 360 switcher, a switcher can support any combination of SD, HD, and 3Gbps/1080p inputs and outputs and seamlessly converts them to and from the required standards. This eliminates the need for external conversion equipment, reduces initial capital outlay, removes system timing issues, and saves valuable engineering and setup time typically required for mobile production units. The switcher, therefore, offers a smooth and cost-effective path to the industry's highest standards and supports a controlled format migration capable of driving new business and revenue-generation opportunities.

Figure One illustrates how a multiformat switcher, such as the Kahuna 360, might accommodate a live production that requires inputs from many different formats including HD, SD, and event 3D cameras, with built-in conversion capabilities that deliver a range of outputs depending on the show's requirements - such as a clean 1080p feed that can be used for archival or post-production purposes, the main programme feed interlaced for 720p distribution networks, or lower-resolution Internet or mobile feeds for output to websites and mobile platforms.

## A state-of-the-art OB truck

HD Broadcast GmbH, an innovative broadcasting service provider for the television and film industries based in Germany, had many of these requirements in mind when designing its new 16-camera OB truck. "In



Europe, broadcasters are dealing with rapid changes in the industry and are extremely focused on migrating from the SD to the HD standard," said Stefan Breder, managing director of HD Broadcast's partner company, Broadcast Solutions GmbH, which is the manufacturer of the new OB-van. "They are looking for solutions that will help them handle the most complex productions, both now and into the future."

The new HD Broadcast vehicle is a 12-metre semi-trailer with a 1.3-metre full-length extension, featuring two independent video production areas and a sound control room. The truck includes a Snell video router with 288 inputs and 528 outputs, and two Kahuna production switchers - one for each production area. "The Kahuna switchers are an important element in our objective to provide a future-proof option for our clients, one that can support HD and 3Gb/s operations as well as 3D productions," said Breder. "Kahuna's multi-format capabilities and smooth upgrade path to 3Gbps, in addition to the integrated 3D support built into all switcher models, means that Kahuna will always be our first choice for our OB trucks."

## Considerations for 3D readiness

There's no question that 3D production is taking the broadcasting and film industries by storm, and service providers are scrambling to offer the capabilities their broadcasting clients will need to adapt smoothly and easily to the new format. The most robust production switchers make incorporating 3D feeds into the production mix nearly effortless, with

**Figure One: illustrating how a multiformat switcher, such as the Kahuna 360, might accommodate a live production that requires inputs from many different formats including HD, SD, and event 3D cameras, with built-in conversion capabilities that deliver a range of outputs depending on the show's requirements - such as a clean 1080p feed that can be used for archival or post-production purposes, the main programme feed interlaced for 720p distribution networks, or lower-resolution Internet or mobile feeds for output to websites and mobile platforms.**

internal image calibration and the ability to handle stereo video feeds on a single mixer bus. "With the Kahuna switcher, we are able to do extensive corrections to stereoscopic 3D content all within a single M/E, and since the image calibration is internal to the system, we can easily make complementary adjustments to the left and right sources to correct any convergence issues," said Breder. "Many of our German customers are already mounting 3D sports productions, and we expect other entertainment events to follow soon. Since Kahuna can handle 3D switching in parallel with all other format sources including SD and HD, we feel we are offering our customers maximum flexibility with minimal operational complexity."

## In summary

These are times of extreme transition for the broadcast industry, with HD migration still very much on the minds of broadcasters worldwide as they scramble to prepare for the next big thing - 3D production. Outside broadcasting production raises the ante by requiring solutions that can adapt quickly and easily to many different types of production requirements as driven by the genre of the show. Today's most advanced multiformat production switchers ease the burden of producing a complex live event by seamlessly incorporating 3D into the mix of formats on the input side and delivering high-quality streams in the delivery formats required. Thus, the great flexibility of this equipment enables higher levels of creativity, efficiency, and more cost-effective use of resources.