

TVBEUROPE



United Business Media

Europe's television technology business magazine

www.tvbeurope.com

AUGUST 2009 £5.00/€8.00/\$10.00



Making connection: Chandrapal and Barry and an on-screen widget

Yahoo! connects to the sofa surfers

TVBEurope360

By David Fox

Afraid of losing viewers to the internet? The latest generation of TV sets will allow viewers to access internet services while still watching TV — which should make it more likely they'll still be around for the next programme or even the next commercial.

Yahoo! Connected TV is an internet platform for TV designed to run in the living room and not destroy the TV experience. The Yahoo! Widgets technology gets installed at the TV factory, "so you can bring it home, turn it on and watch it," explains Patrick Barry, Yahoo!'s vice president for Connected TV.

It and Intel are working with some of the biggest brands in the industry, including numbers one, two and four globally: Samsung, LG and Sony. It charges no licensing fees, which should aid uptake.

It is now shipping the Yahoo! Widget Engine in the US and 10 European countries (the UK,

Germany, Italy, France, Spain, the Netherlands, and Scandinavia), and is available on many models of TV set — Samsung has installed it on half of its TVs. "They see Connected TV as the future for them for innovation," he says. "TVs are as big as you want them and they're really thin. So, we're reaching the limit of where we can innovate in terms of form factor."

Users simply have to press a button on their remote and the Yahoo! Widget Engine appears on screen, but only taking up the bottom part, and resizing the TV window, so viewers can still watch TV. "We're keeping TV at the centre of the experience." Connected TV is not quite the same as the hybrid broadcast/broadband services that some broadcasters are working on, but the eventual outcome for the viewer could be similar.

Barry doesn't believe that anything that tries to limit access to the internet will work. Users don't want walled gardens. "If you shut the door, they'll go out the window."

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Adrian Pennington explores the world's only commercially successful 3D TV experience

A 3D reality breakthrough

3D Production

While plenty of industry attention and press ink has been directed toward the rise of stereoscopic 3D it's refreshing to find a 3D TV system that not only goes against the grain, but is also operational. Indeed German producer Telcast Media has been pioneering stereo production since 1992 and claims to be the only company to have successfully produced 3D TV for major broadcasters including TF1, RTL, Discovery and the BBC.

It created 3D versions of *Doctor Who*, *Top of the Pops* and *EastEnders* for Children in Need a decade ago, while its own 3-D Megashark aired on Discovery. The company's patented system is still finding favour among broadcasters. The latest to licence it is Thai subscription cable channel Truevisions TV which will use it to produce live sections of its highly popular talent-based reality show *True Academy Fantasia*.

Truevisions TV's chief programme officer and the series' executive producer Attaphon Na Bangsang wanted to use the 3D experience to bring something new to the production's sixth season, which launched on 29 June. *True Academy Fantasia* is described as a mix between *X Factor* and *Big Brother*. The contestants for the song-led talent show live in the same house fitted with hundreds of hidden cameras. Audiences can watch them 24/7 live on TV and online.

Telcast produced sections of the live opening and closing concerts in 3D as well as recorded segments of the contestants, a virtual tour round the house and a 3D



Producer-cameraman Martin Winkler with contestants (above) and crew (below): with 15 years 3D experience he claims not to need a monitor when shooting



commercial for one of the show's sponsors (7/Elleven or Pepsi). It is in essence an anaglyph format, often derided by exponents of the new stereoscopy, but according to Telcast president Thomas Hohenacker, the only format which will be successful in the home.

"Polarised systems have two different perspectives — one for each eye — that are broadcast or projected at the same time and

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IBC 2009 SNEAK PREVIEW

We launch our pre-IBC new product release coverage with a key selection of introductions, supplied by our IBC Daily editorial team. In Part II IBC Preview next issue we will also feature some innovations where launch news has been embargoed until the opening of IBC2009. — Fergal Ringrose

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Key elements of HD infrastructure

High-Def broadcasting in context: The systems integration viewpoint

HD Systems

By Guy Elliott,
managing director,
ATG Broadcast

The transition from SD into HD is currently progressing in many countries, part of the global switchover from analogue to digital transmission. Like many new technologies, HD was a classic case of the chicken-and-the-egg: why broadcast in HD if no one is equipped to view the output? That has now turned on its head with 1080-line rapidly becoming the native display resolution for domestic television receivers.

Given a respectable transmission bit rate, digitally delivered 1080i viewed on a 1080-native screen is nothing short of breathtaking. Almost every broadcaster currently delivering an SD service is looking to upgrade to HD when market conditions are right. Market conditions are dictated not just by the availability of funding but by audience expectations and pressure from competitor channels.

For ATG Broadcast, HD has effectively become the new SD. Most state broadcasters worldwide have made a firm commitment to HD both for new infrastructure and in their upgrade plans for existing studio, post production and playout facilities. High-quality HD camcorders are now compact and affordable, allowing programme-makers on even the tightest budgets to future-proof their productions.

Technical issues

It would be wrong to describe HD as a technical minefield but there are important issues to



At TV4 Sweden, ATG installed a 3Gbps-native 576 x 576 Pro-Bel Cygnus high definition routing frame equipped as a 324 x 312 matrix

keep in mind. I will tackle them in priority.

Cabling: The superiority of optical fibre networking in comparison with traditional copper cabling was widely recognised even before the transition from analogue to digital SD. The high bit rates inherent with HD-SDI make copper a safe option only for cable runs of less than 80m. Optical fibre allows much longer lengths without need for mid-way relocking and takes up less duct space than the copper equivalent. Space issues still arise at the router I/O ports where a large number of bulky copper cables have to be accommodated within the finite dimensions of rackroom cabinets.

Data compression: No broadcasters yet transmit native uncompressed HD, nor do they need to if the source signal quality is high and intermediate post production is handled transparently. Severely compressed origination formats such as HDV should be used sparingly, preferably only where portability or operator-security are issues.

Audio/video timing: Maintaining

one field, exactly 1/50th or 1/60th of a second. Doing so means the double lines, which would blur a 3D stereo image viewed in 2D, are negligible. Telcast's patented 3D glasses in connection with its 3D shooting method merge the two perspectives into a three-dimensional image in the brain of the viewer.

It also means capturing at 50 individual fields (50 or 60i, not 25p or 30p although 50p is possible). Telcast uses a single HD camera and standard lens, modified with the firm's patented 'special sauce' contained in a black box attached to the camera, the detail of which Hohenacker isn't revealing.

Telcast doesn't just license the technology but the camera operator as well, believing that the success of a 3D production is just as reliant on craft skills. Martin Winkler, the producer-cameraman for *True Academy Fantasia* has 15 years experience under his belt and claims not to need a monitor (even though one is hooked to his

synchronisation between audio and video signal feeds is essential in any system. HD requires particular care as the video processing durations can be relatively long. Lip-sync errors are even more visible when seen in HD than in SD unless the lip motion has itself been blurred by excessive compression. HD-SDI networking has the advantage of keeping audio and video together in terms of timing as well as distribution.

Signal formats: SD embraced a tediously large number of variant native signal 'standards'. HD has even more, including subsets of 720p, 1080i and 1080p. Each has to be discussed at the start of any proposed new HD studio installation and usually accommodated at least as an ingest format. Signal storage is nowadays largely file-based, ingesting from HD digital video or from file-based capture devices such as Panasonic's P2.

Picture monitoring: Discrete CRT-screen monitors have largely disappeared from master control rooms and presentation suites,

Steadicam) when shooting, but to judge the 3D effect by instinct.

The signal output from the camera, or recorded to tape, is produced and transmitted normally. "No other equipment or post production intervention is required," Hohenacker says. "That's the big advantage for broadcasters who don't have to change or invest in any hardware." Edits will tend to be held a little longer and slow-motion, unless shot at 150fps, destroys the necessary frame ratio.

The special 3D glasses, usually cardboard framed and distributed free with programme promotion (in this case with the cable customer's magazine) contain patented film that "instead of filtering individual colours from the superimposed image like red-green anaglyph glasses, creates a time delay in perception."

For Winkler, the key to preparing the shoot is to look for scenarios with a foreground, mid-ground and background and if an element isn't

replaced by multiscreen LCD panels and the newer very high quality LED screens. HD-native monitoring is obviously important and we do not advocate reduced-resolution picture monitoring even by CRT devotees.

Signal monitoring: Rasterisers are becoming increasingly popular for HD signal monitoring both in broadcast and post production environments. Compact instruments such as the Tektronix WVR7120 handle dual link, HD-SDI, and SD-SDI as well as embedded and discreet AES audio, Dolby Digital and Dolby E, in a single unit with a user-definable multiscreen display.

HD projects

One of the earliest HD projects we worked on was at National Geographic Channel, providing expanded HD resources at the network's European post production centre in London. The project extends the capabilities of the HD post production and playout system installed by ATG Broadcast prior to the channel's commencement of 1080i transmissions last summer. It



Guy Elliott: Almost every broadcaster currently delivering an SD service is looking to upgrade to HD when market conditions are right

includes additional Sony HDCAM-SR multi-format recording and playback facilities in the audio post production suite. These are used in conjunction with an existing Avid Adrenaline video editing system. The Adrenaline itself was enhanced with Dolby Audio Tools, Avid ProTools LE audio editing software, additional Dolby E multi-channel sound encoding, decoding and monitoring and Rosendahl MIDI timecode interfaces.

At TV4, Sweden's largest independent television channel, we installed an HD routing system. This included a 3Gbps-native 576 x 576 Pro-Bel Cygnus HD routing frame equipped as a 324 x 312 matrix with dual redundant power supplies, dual redundant controllers and four monitoring outputs. It followed on from the addition of Harris NEO HD-SDI/SD-SDI video routing switchers. One of the first applications of the Cygnus was to process HD feeds from the 2008 UEFA European Football Championship hosted by Austria and Switzerland.

We also equipped new edit suites for Red Bee Media, Britain's largest playout and channel management service-provider. The largest of these facilities is an HD video edit suite centred on a Quantel eQ workstation with external FC Dylan disc storage attached to the existing server system.

Content archives as well as broadcasters are upgrading to HD. We recently completed a technical upgrade commission for the Imperial War Museum. This contract involved expanded resources for the Video Room at the museum's aviation branch in Duxford, Cambridge, including the supply and installation of a high definition video recorder with supporting infrastructure.

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A 3D reality breakthrough

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separated again by the glasses," he explains. "This is no problem in a controlled environment like a cinema, but in the home viewers without glasses will be discriminated against since the double signal superimposed on the image renders a 3D polarised broadcast redundant for viewers in 2D."

He adds, "It was always clear to me that a successful 3D television system is one that doesn't discriminate against any viewer which is why our system can be viewed with the Telcast 3D glasses in 3D or without glasses perfectly in 2D."

Instead of superimposing the two individual perspectives and broadcasting them at the same time, Telcast broadcasts with a delay of

present, to shift his position or that of an object around accordingly.

"It's about the choreography of the camera, people or objects," he says. "The opening sequence of this show will be straightforward since there are 12 contestants which we can frame at different distances. The concert stage has also been redesigned for 3D (in terms of placement of a band, the stage width has also been extended to allow Winkler more room to move) but some rooms of the house can look flat (such as a bedroom with row of 10 beds) so I've shifted tables, plants or lambs to the foreground."

Telcast transported over a million 3D glasses to Bangkok — weighing over 4,400 kg. A symbol appears on screen alerting viewers to wear them for the next scene. "Each 3D section, such as a song, is around 3-4 minutes long although we can go up to 45 minutes in 3D," explains Winkler. "Much more than that and any 3D system starts to feel uncomfortable."

Telcast has signed a deal with Jordanian broadcaster ATV to produce a 10x5min series on the venues for the 2010 World Cup. Although it won't be producing live action from South Africa, Telcast has done sports in the past including Sydney 2000 Olympics and French league soccer for TF1.

"Polarised systems are great for the cinema where everyone has a pair of glasses but when you move to mass market broadcast our system is definitely the only way," Hohenacker says. "There is no alternative without swapping out hardware for consumer and broadcaster."

"We have a track record of increasing ratings of shows filmed in 3D by 50%," he claims. Telcast holds the record for TF1 ratings for its 3D production of *Miss World* a decade ago. Perhaps that's not so surprising, but the Thai example shows that even reality shows can benefit. "Even on long-running series where we've inserted 3D elements, ratings have gone up 80%."