



# 3D TRAILBLAZER

2010 is hailed as the year of 3D – LG, Panasonic, Sony and Samsung are all getting 3D TVs into the shops this year. In April UK broadcaster Sky launched Europe's first dedicated 3DTV channel and Norwegian company **Vizrt**, which provided the graphics system for the world's first 3DTV virtual reality studio in Germany, won the contract to provide the core graphics platform for Sky. **Rex Jenkins**, MD of Vizrt in the UK, was closely involved in the project – what are the particular challenges of producing 3D content?

**I**t is so new, producers are still learning as they go along. You have to make the viewer feel comfortable throughout and it is terribly easy to make them feel uncomfortable, even sick, if you get it wrong. When you are looking around in the real world, the point of convergence of your eyes is the same point where they are focusing. So when you look at a TV screen the focal point is the flat plane of the screen itself but with stereoscopic 3DTV the point of convergence may now be behind the plane of the screen or coming out from the screen towards you.

Therefore you don't want to make a lot of fast cuts from camera to camera because then your eyes have to adjust to the changes. When you are covering sporting events you would use far fewer cameras for stereo than you would for an HD production. Also, if a football match is being covered for an HD channel, the cameras tend to be much higher up to give a broader view of the action, whereas in stereo it is better to be quite low down. Which means many of the

camera positions will not be the same as for HD so for stereo you may need almost double the live production operation. That's a challenge.

### **A live stereo 3D shoot costs up to 50% more than HD – how can broadcasters economise?**

For any new technology, you have to allow for added costs while you upgrade. This is much more the case for upgrading to stereo than was the case for upgrading to HD. I think these costs will come down in time as people will think of more economical ways to incorporate stereoscopic storage, processing, editing etc using conventional resources. What I expect to happen is that the next generation of production equipment will be stereo-enabled, but it will also be backwards compatible to do HD and SD.

### **What is Vizrt doing for Sky Sports' new 3D channel?**

One of the things that can really enhance the 3D experience of any live event is the graphics that you add when there is nothing very much going on – let's say during a ►

break in play. When Sky Sports were an SD channel we provided them with our real time graphics, then they upgraded to HD, we followed suit, and now they wanted to have real time stereoscopic 3D graphics. They tested ours and we won the contract.

**Why did they go for Vizrt?**

When a channel is looking at going stereo, either occasionally or for a whole new channel, there are many new things to change. There is new equipment to buy, learning about the technology and concern whether you are making the right decisions since there are so few reference points. One thing they didn't need to worry about was their Viz system. Because our graphics have always been 3D they will work with whatever camera system they choose, whatever processing and editing they want to do, whatever distribution method.

When an artist designs an animation he is actually using 3D objects and is moving them in three dimensions - in Z space as it's known. It's then a relatively simple matter to enable these animations that were used in the past in a 2D context for stereo 3D. Sky did this - it was a far simpler process for them to take graphics that they had already designed and templated for the HD channel and use them as the basis of the graphics for the stereo channel. So in a way it has been easier for us to take on the challenge of stereoscopy compared to others who only had 2D real time systems.

**When will Mr. Average be able to sit on his sofa and watch 3DTV?**

More and more stereo-enabled screens are now being marketed but there is no one industry standard at the moment. There are essentially two types of 3D glasses. One uses circular polarised light where one image is polarised in one direction and the second image is polarised in the other direction. And each lens of the glasses acts as a filter to allow only the one that is in the right plane to pass it. So each eye sees a different image. The

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problem with these glasses is that they can give a slightly dim picture. The other type is electronic glasses with an in-built battery. The image for each eye is shown at 50 or more frames a second, and as one eye's image flashes up, the shutter for that eye opens - then when the next image comes up, that shutter closes and the other shutter opens up. So each eye is seeing a different image, they are appearing at different times but the brain is fooled because it is happening so fast.

The alternative is the autostereoscopic displays which use lenticular lenses. We have been working with the French company Alioscopy and now integrate with them. If you imagine various zones which project out of the screen like a fan, then as long as your head is in one of those zones, 3D works very well. You have to sit at a distance that is dictated by the TV screen, a 40' screen means you have to sit about 4m back. Everybody watching would have to be aligned in front of the screen. If you move your head substantially you can end up either not seeing the stereo effect or, if you have one eye in one zone and the other eye in the other, it will make you feel ill.

**Which is the way forward - glasses or autostereoscopy?**

The nicest display is definitely with the shutter glasses, and it's amazing how quickly you get used to them. But they are expensive - if you have 10 friends coming round to watch the World Cup with you, it becomes a very expensive prospect. However, I am sure that in time engineers will refine autostereoscopy so that we will no longer need glasses at all.

**Right now there isn't very much 3D content out there.**

This is the biggest problem at the moment. There have been some attempts, using clever software, to process 2D pictures and convert them to stereo 3D with varying degrees of success. However viewers can distinguish between good "real" 3D and bad "synthesised" 3D. At the moment there is no easy way of creating realistic, easy-on-the-eye 3D from 2D but I am sure that too will be developed. It has to.

**What sort of content will push the adoption of 3DTV?**

It will be live sport, as well as the major feature films. Boxing and



athletics looks great, you are really close to the action. Also impressive is ballet, 3D does add something to it. It's a mixture of sport, cultural and movies that will sustain 3D. Until the volume of 3D content builds up, a channel may well show chunks of HD 2D output, then a stereo 3D film, and then it will go back to 2D. And some of the viewers are already saying 'I wouldn't like to watch six hours of stereo'. In my opinion, the smartest way of using 3D is when it actually adds something to the action – just because you have got it doesn't mean you have to use it all the time.

#### Any interesting projects in the pipeline?

Last year we acquired a content management system (CMS) which is a sophisticated web publishing system. Vizrt were early pioneers of the concept of template graphics – tomorrow's news graphics are often much the same as today's graphics and so journalists only need to change those few elements that are different. Much the same could be said of publishing for news web sites. By integrating our CMS with Viz we can enable our broadcaster

customers to repurpose their TV graphics content for their website. This is what many of our customers are working towards.

A classic example is the BBC West One project where the news operations for TV, radio, online and the BBC World Service are all converging within one building. All the different platforms will be located together, with everyone able to access the same assets, and therefore each facet of the news technology must be able to talk to one another. This is what we are working on now. The expression that best describes it is integrated conversion. We have our asset management system, called Viz Ardome, which enables all the media content to be stored, edited, transcoded and accessed very easily, and we bought a new company called Adactus that converts optimised web content for mobile devices and can also deliver high-quality video from a mobile phone back to base for broadcast, including all the metadata.

#### How are you helping broadcasters get content onto mobiles?

The clever guys from Adactus have developed an automated system to

▲ **Main Image:** Vizrt 3D graphics demonstration  
**Top left:** Vizrt 3D graphics on screen at Al Jazeera English  
**Bottom left:** NRK's election night programme illustrated by Vizrt 3D graphics

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enable broadcasters to optimise their video and their web content for any make of mobile phone. So the idea is that when a phone links to that optimised site, information is exchanged between the phone and the media server so it knows all the technical features of that phone. Then, in real time, it will transcode stored HD video from a broadcaster into exactly the right video format, aspect ratio, resolution, etc to get it onto that specific mobile device for the best viewing experience. And likewise it will do the same for any website by optimising it for any mobile phone.

#### What would you like to happen in the next 12 months?

This year, I would like the company to deliver really good results commercially, to prove that we can carry on Bjarne's legacy in the way he would want us to. I am pleased to say from our results so far that it looks like I am going to get my wish.

#### Rex Jenkins, thank you very much.

Vizrt CEO **Bjarne Berg** died in May of this year at the age of 59. **Martin Burkhalter** is the new CEO.