THE FUTURE OF SPORTS BROADCASTING
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Major live sporting events are watched by millions of people around the globe. As viewers access content from multiple sources and watch it in real time via multiple devices, competition to catch the end-user’s attention increases dramatically. The pressure to deliver live, high quality, content-rich coverage is huge. However, live sports production techniques have seen very little change over the past thirty years.

Today, live content needs to be produced, enriched and delivered instantly on various platforms. Live production has become more ambitious and challenging than previously, creating the need for a newer, faster production environment and a truly collaborative way of creating content. At the same time, financial pressures push broadcasters to find solutions that will reduce their production costs – including working remotely and reducing the number of onsite staff.

These changes to the production workflow will not only help to optimise the existing usage of content, but will also create new opportunities (eg, multiple simultaneous productions, device-customised services, multi-platform distribution, repurposing, archiving, etc.).

THE SPORTING LIFE

In recent years, the proliferation of smart devices (especially smartphones and tablets) has been a driver for content consumption in real time via multiple devices. Consumers are increasingly taking control of their viewing schedules, seeking anywhere, anytime content access.

Added to this, there are now a plethora of over-the-top (OTT) services – such as Netflix, Amazon's LoveFilm in the UK and Vivendi’s Watchever in Germany – as well as VoD options, all fighting for their share of consumers’ individual viewing time. This highly competitive environment creates pressure on broadcasters to deliver live, high-quality, enriched content as a means of grabbing – and more specifically keeping – viewers.

Sports broadcasting is big business, not to mention competitive. This is particularly the case when it comes to mainstream sports such as football. With so many broadcasters now snapping up the rights to sports broadcasts, major sporting events such as the FIFA world cup and the Champions League now have global audiences.

In order to keep pace with consumer demands, live production of sporting events must become much more ambitious than it was previously, taking place on an ever larger scale. An event like the Olympics involves a huge outside broadcast (OB) production workflow, with a raft of cameras, multiple live feeds and so on. While a sports broadcast may seem much more elaborate from a viewer perspective, with Super Slow Motion and overhead stadium shots mixed in with regular pitch side camera feeds, this still takes place within a single linear feed, with different segments appearing along a single timeline. Although the number of segments has increased, the production still only delivers a single broadcast signal per event, with delivery to different platforms derived from that one signal.
IT AIN’T BROKE

There has been very little change in sports production techniques from the early days of live sports coverage; the actual production process remains much the same – except now it’s HD and 4K cameras and everything is digital instead of tape-based. We still have multiple cameras located around the stadium, with cameramen and colour technicians. Camera feeds still go to the OB van where a production team put together an edited version and then a single live stream is aired by the broadcaster. In recent years we’ve also seen this single live feed being edited and converted for online and mobile distribution. Nevertheless, whichever way the consumer accesses the end result, it is still just a single viewpoint – one way of telling the story of what’s happening on the field, not to mention the impact on the quality and delay. Once this process is complete and the content has been aired, the final media file is archived.

Throughout its lifecycle, this media file goes through multiple compression/decompression processes, both during live production and afterwards, which impact its integrity and results in a loss of quality. Most of the time, the metadata does not follow the media through the different stages of the production and archiving process, and will often be entered several times; this creates inefficiencies along the production chain. What’s interesting is that this lack of efficiency is not due to a lack of the relevant technology.

There’s a degree of reluctance among broadcasters to change a live sports production workflow that’s worked for them for many years. It’s a prime example of the old adage ‘if it ain’t broke, don’t fix it’ in action. The re-entering of metadata isn’t the only aspect of a live sports broadcast that causes inefficiency.

In general, producers also like to be on-location, as close to the live action as possible without actually being on the field. With the technology that is readily available today, this doesn’t have to be the case. Remote production is a far more efficient and cost-effective way to produce the same high quality live sports broadcast that consumers expect, without having to deal with the cost and logistics of an unwieldy and complex OB set-up.

As cost-savings become increasingly important for broadcasters, they will need to look at changing the way they do things – especially if they want to continue to produce large scale live sports broadcasts such as the Olympic or the FIFA World Cup.

In practical terms, this is not as big a transition as it seems. Under the current outside broadcast production set-up, the director, the producer, editors and graphics team are all located in the OB van, which is linked to the stadium via a fibre connection – they are not actually pitch side. Remote production would, to all intents and purposes, simply be a case of linking the production team to the stadium by a longer piece of cable.

For a large scale production like the FIFA World cup, the multiple cameras at the stadium would link to a server and the uncompressed signals (or DNxHD IP Streams) would in turn be transferred over the telco network to a centralised storage located at a single studio center (such as an IBC). The media files can then be accessed by different teams, edited into different versions for archive, on air transmission and distribution to second screen (smartphones, tablets, etc.). One of the factors holding broadcasters back from this type of workflow is that sending multiple streams to a central server means having to compress/decompress the signal; which means a loss of signal quality along the way.

Admittedly, it’s not just broadcasters that will have to change their approach. At the moment, network connections (fibre, etc.) at sports stadiums tend to be low-bandwidth, which means multiple feeds from the stadium to the production studio is problematic. Unless broadcasters’ demand for additional high-speed capacity is there, there’s little incentive for telcos to invest and install new 100 Mbit/s fibre connections. That’s not to say that telcos are unable to do so; during major sporting events (the Olympics, FIFA/UEFA tournaments, etc.) 10 Gbit/s (supporting 6xHD uncompressed signals or 66x HD signals @ 120Mbps or 1x 4k signal uncompressed) is standard. Telcos are also investing in fibre backbones, with rollout to most major cities already complete, using 100Gbps Lambdas as standard “pipes” for their own usage.

One of the other main obstacles to change is that the network is often owned by one telco, while the capacity is sold by another, creating greater complexity. For remote production to be successful, broadcasters and telcos will need to work together to ensure that high-speed fibre connections at major sports stadiums become the norm.
ALL CHANGE

If broadcasters and their telco counterparts were more in sync, this concept of remote production would seem less daunting and complicated. Traditionally, broadcasters have seen the telco network as just a fat pipe for sending their content over; the telcos view content as just another data packet with not enough understanding of the importance of fast, lossless file transfer when it comes to video. When sending data via an IP transfer, it’s broken up into packets, which are sent via the first available route, then re-configured at the other end – failed packets are just requested again. This method doesn’t work for live video content. The encoding/decoding process already introduces delays into the production chain, so in a live production environment media files need to be delivered in order and with minimal delay to avoid compounding this.

There are things that can be done to address this, and IP technology is evolving to be able to easily and reliably cope with video-based data transfer. There are also developments on the broadcaster’s side which can help minimise delays and protect file integrity – notably choosing the best codecs for IP transport. There’s a strong case for JPEG2000 format, because it’s more tolerant of packet delivery and easier to rebuild at the other end; it also preserves file integrity to a greater degree.

As 4G (for which the killer app is set to be content) becomes more widely available, and as telcos seek to stave off competition from their cableco rivals, their understanding of content delivery will have to increase. What the industry needs now is for a better working partnership between the broadcast community and telcos if we’re to take the next steps in evolving the way content is produced and delivered to meet consumers’ demands.

Broadcasters have also tended to look ahead in five to ten year increments and construct their business plans accordingly. However, consumer habits are now changing at an ever faster rate – the way consumers access and watch content can undergo a complete transformation in the space of just two to three years. Broadcasters will have to learn to keep up.

DIVERSIFICATION OF RIGHTS

As the take-up of smart devices becomes more widespread, the greater the shift in viewing habits and the greater the number of potential new revenue streams that can be exploited. Currently sports rights for mobile distribution are bundled with television broadcast rights, so there’s very little incentive to monetise second screen. But this could all change in the future. We’re already seeing how rights are now becoming more fragmented – it’s no longer just the large sports broadcaster that can snap up rights to the entire season, rather they are increasingly shared out across multiple broadcasters and platforms.

Once mobile rights come into play, broadcasters will have to re-evaluate the way they deliver content to second screen devices – in particular if they want to monetise these services. At the moment, it’s much of the same content that is played out to air that gets delivered to smartphones/tablets, which is not as appealing as it could be from an end-user perspective. This could explain why the take up of small-screen access of live sporting events has been slower than expected.

IN CONCLUSION

The perennial question for broadcasters, in particular in a live production context, is how to do more without having to make huge infrastructure revisions and investments. One of the main ways to ensure this going forward will be introduce new more efficient ways of working and in particular in using existing infrastructure and IP equipment. Partnerships and greater dialogue with telcos will also play a key role going forward.
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