



How Dolby and Telegenic are bringing ringside seats into boxing fans' homes



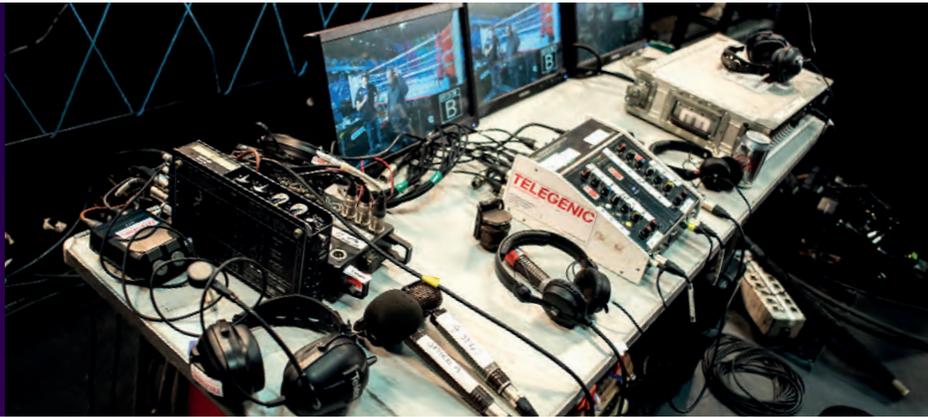
Outside broadcast specialist Telegenic is the company behind BT Sport's groundbreaking live 4K boxing broadcasts with Dolby Atmos

New technologies continue to transform the way we enjoy sports, especially for fans at home, transporting them right into the heart of the action. Dolby Laboratories, Inc. has long been known for its innovation and is helping to provide a more immersive experience for armchair fans with its revolutionary Dolby Atmos technology.

Dolby Atmos is designed to make entertainment more engaging. Whether it's the latest movie, drama or football match, it brings you right into the story. It enables viewers to have a more realistic audio experience with sound appearing to come from every direction – even from above.

Last year, BT Sport became the first UK broadcaster to offer live broadcasts with Dolby Atmos audio, beginning with a Premier League match between Liverpool and Chelsea. The company now offers regular live games with Dolby Atmos audio to subscribers of its BT Sport 4K UHD channel.

A few months later, BT Sport branched out with the world's first live 4K boxing broadcast with Dolby Atmos, including two world title fights and the professional debut of British boxing's first female Olympic gold medal winner Nicola Adams.



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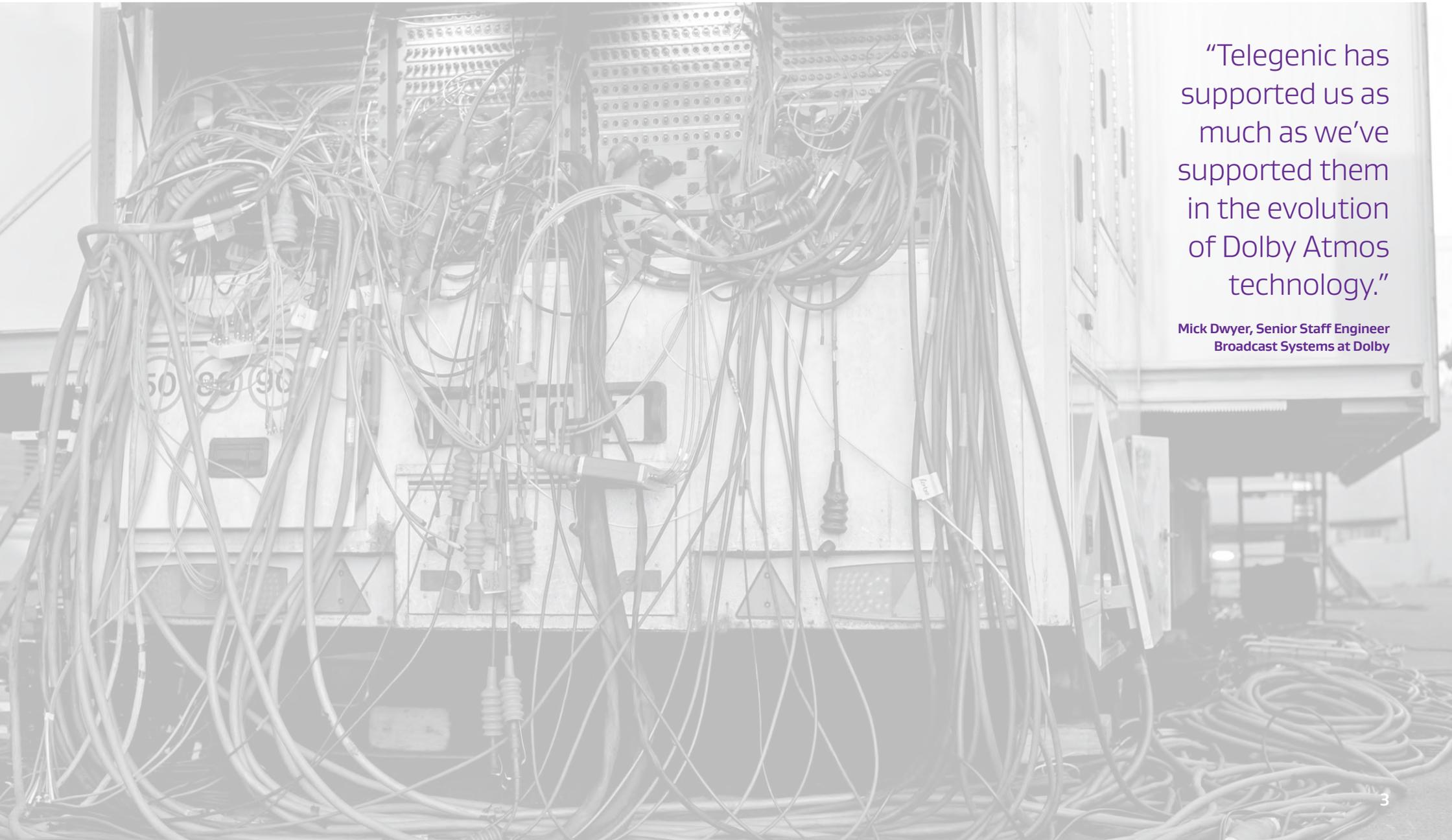
Richard Williams, Senior Audio Engineer at Telegenic

These trailblazing broadcasts were made possible thanks to independent OB firm Telegenic, which has a strong history of innovation, having provided equipment and expertise for the world’s first live 3D broadcast in 2009. The pioneering company works with all the major broadcasters, predominantly on sports coverage, though it also supports a range of light entertainment shows such as *Dancing on Ice*.

For the first live boxing broadcast using Dolby Atmos in April 2017, Telegenic provided the on-site technical skills, rigging the entire set-up on the day of the fight. “It was a learning experience,” says Richard Williams, Senior Audio Engineer at Telegenic, who was part of the OB team for the debut boxing broadcast. “For me, Dolby Atmos is all about placing you in the audience,” he says, adding “what you’re capturing is that big stadium atmosphere around you”.

Telegenic has been working with Dolby for more than a decade and the two companies first began experimenting with immersive audio together at the 2013 Confederations Cup in Brazil. As Telegenic was building a new OB truck, they took the opportunity to put speakers in the ceiling in preparation for Dolby Atmos as this was simple to do as part of a new truck design. This meant that Telegenic already had one Dolby Atmos-ready truck in place for its work with BT Sport but it needed to roll out some extra vehicles to meet the broadcaster’s requirements.

“The retrofitting of speakers in the additional trucks has been more challenging, based on the way that those vehicles are constructed”, explains Mick Dwyer, Senior Staff Engineer Broadcast Systems at Dolby. “Telegenic has supported us as much as we’ve supported them in the evolution of Dolby Atmos technology, but as a general rule, we work with an OB company to involve them in the design process of how we put our equipment into their facilities, then take product feedback, and give them initial on-site support. With Telegenic, I got to the stage very quickly where I felt comfortable leaving it in their hands without us being on site”.

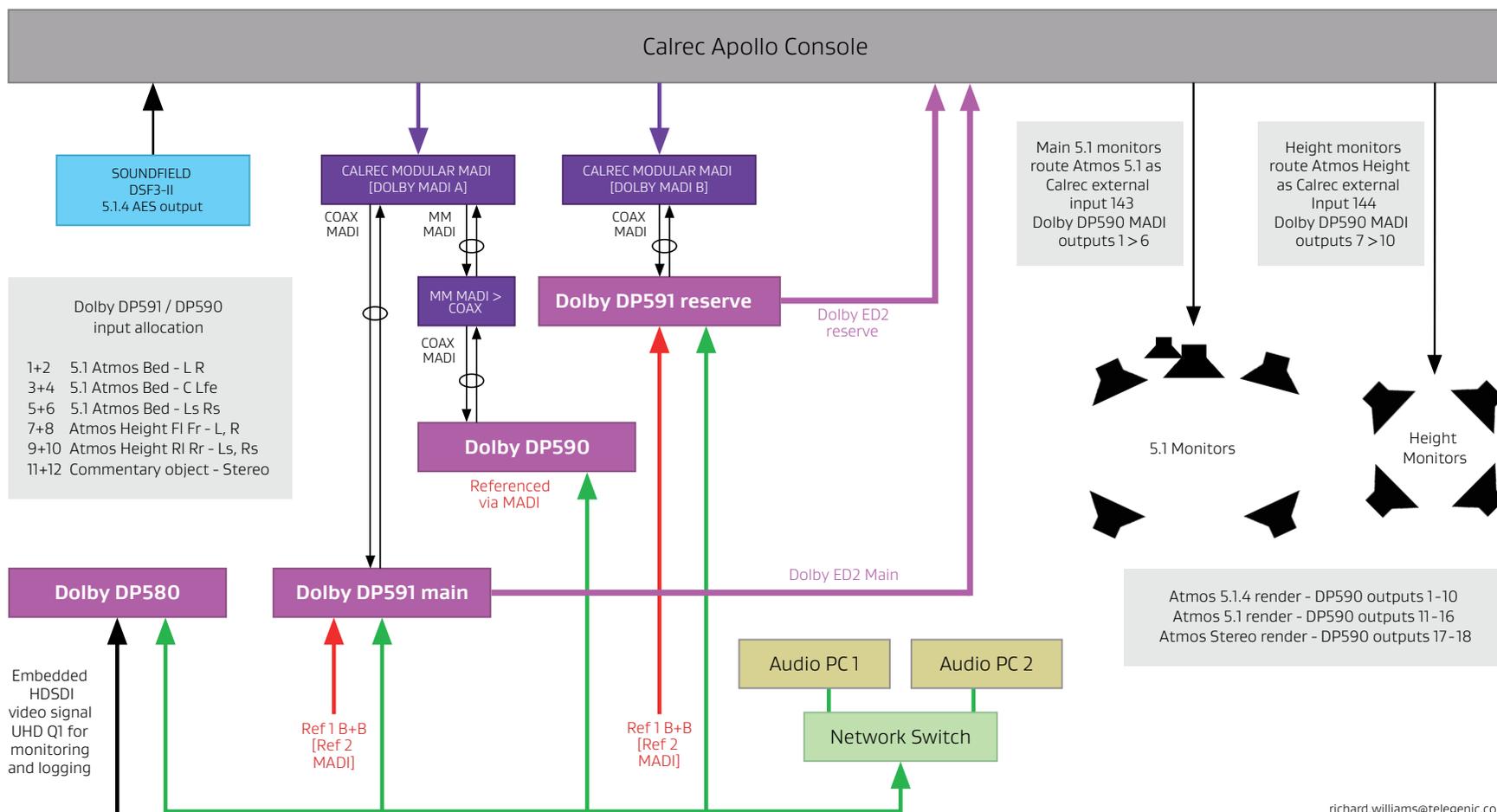


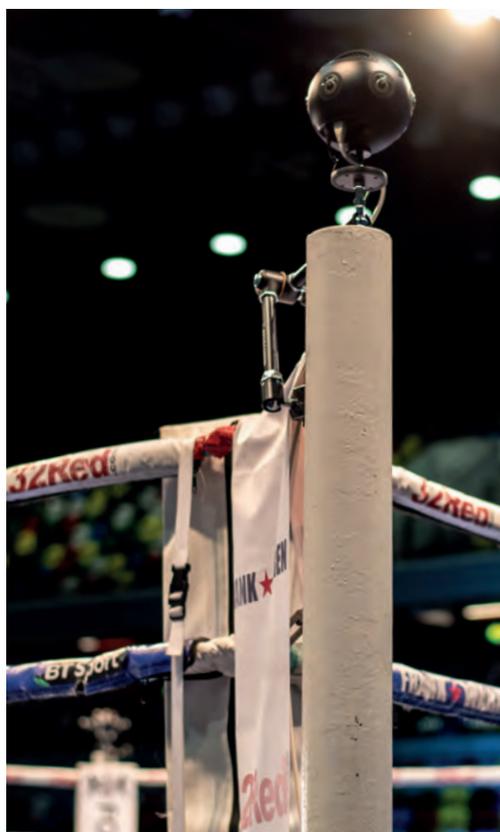
“Telegenic has supported us as much as we’ve supported them in the evolution of Dolby Atmos technology.”

**Mick Dwyer, Senior Staff Engineer
Broadcast Systems at Dolby**



Dolby Atmos Installation Telegenic OB Trucks





The rig used to capture each bout for the BT Sport broadcast included a multidirectional SoundField microphone installed above the ring, which allows the engineers to extract multiple sound outputs including height information in order to reproduce the effect of overhead sound. What's more, a selection of additional microphones carefully placed in strategic spots around the ring, including effects mics on handheld cameras, a stereo mic on a jib and pole mics in the corners, helped to capture various audio elements to complete the soundscape, including everything from the roar of the crowd, the impact of each punch and the calls of the referee.

"I like the audio to follow what the viewer's looking at," explains Williams. "For example, between rounds, when the camera pushes in on the boxer and trainer in the corner, we started putting that corner microphone in the height as well as the front [of the mix], so that for a few seconds, the viewer is absolutely surrounded by the audio from that corner".

Aside from the upgraded OB trucks, the technical changes needed to accommodate Dolby Atmos were relatively minimal. "As with most OB firms in the UK, Telegenic use Calrec audio consoles," explains Dwyer. "They worked



and fed back into the Calrec's product management team with the view that they could enable single-point monitoring on a console surface. In terms of monitoring, this means that when the mixer turns up, the only difference for them between mixing a show in Dolby Atmos or in 5.1 is just another button to press”.

The kind of detail that Dolby Atmos provides gives viewers extra insights into what it's like to experience a prize fight from a ringside seat and the technology could also be used to boost the fan experience for other sports and events, with all stadium-based sports requiring a similar setup with a few tweaks. “If viewers at home have a compatible system, and as long as the audio is mixed and balanced well, Dolby Atmos can be used on pretty much any broadcast,” says Williams. “It could be applied to events like Wimbledon and the Super Bowl”.

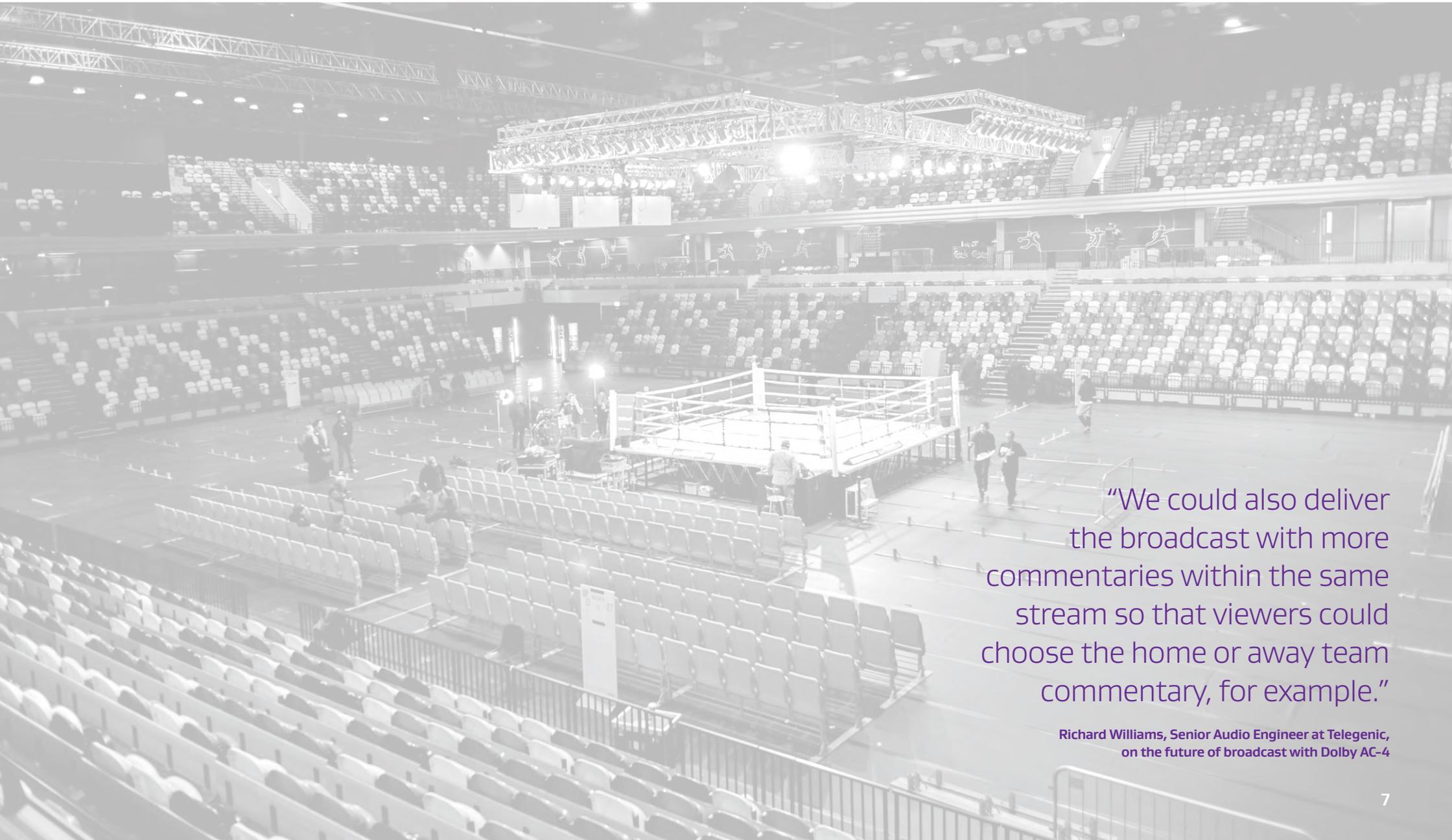
And the good news is that Dolby Atmos can be seamlessly integrated into existing workflows, while extensive support is provided by Dolby if required. “From an engineering point of view, our aim is for the new technology to have as little impact as possible on the sound supervisors (known as AIs in the US),” explains Williams. “Once the hardware is all installed, it's pretty straightforward.

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Mick Dwyer, Senior Staff Engineer Broadcast Systems at Dolby

We did a lot of test events so we had a bit of time to play with stuff to get it right. I shadowed a lot of our team on their first Dolby Atmos OBs and then we built a training document and hands-on training for our engineers. We've had really good support from Dolby. They're always available on the phone if we have any issues at all. They've been fantastic”.

Similarly, Dolby has found Telegenic equally supportive to partner with and is likely to continue to work with the pioneering firm to trial technologies as they emerge in future. “We've got a good, tight working relationship,” says Dwyer. “Great people, great company – nice working with them all the time”.



“We could also deliver the broadcast with more commentaries within the same stream so that viewers could choose the home or away team commentary, for example.”

Richard Williams, Senior Audio Engineer at Telegenic,
on the future of broadcast with Dolby AC-4



Aside from giving viewers the benefits of immersive audio, Dolby continues to work closely with Telegenic to ensure the production techniques also work for the enhanced experiences Dolby AC-4 will enable. Considering the potential capabilities offered by the technology, Williams says he would like to experiment more with other sports in future, especially when it comes to personalisation. “With rugby, we’ve only done big games at Twickenham so far – I’d be interested to see what it sounds like if we go to Northampton on a Friday night, when you’ve only got 6,000 people in the stadium,” he said. “We could also deliver the broadcast with more commentaries within the stream so that viewers could choose the home or away team commentary, for example”.

Moving back to the present, Dolby Atmos has the ability to improve the way viewers experience the sound of a live event like nothing before. “I think a lot of our existing contracts could be enhanced by Dolby Atmos,” concludes Williams.

Telegenic’s groundbreaking 4K Dolby Atmos boxing broadcasts offer a fascinating glimpse of the future of sports coverage for viewers. Not only does the technology bring sports fans right into the action, it has also expanded Telegenic’s capabilities to offer a more diverse range of broadcast formats. When it comes to giving viewers an immersive blow-by-blow experience of the big fight, Dolby Atmos goes the distance.