Bruce Devlin

UHD-2/8K

I remember seeing the first 8K images at IBC, and I was struck with feelings of awe, wonder, and incredulity in equal measure. The engineering marvel that I was witnessing—not just the display, but the entire ecosystem from glass to glass—was a wonder to behold. The sheer audacity of putting the system together made me proud to be in the industry. I was left with the question "Who wants this?"

Fast forward to summer 2020, and the world is very different. 4K is normal and we are bracing ourselves for the most spectacular 8K coverage that the world has ever seen, with the Olympic Games in Tokyo (which will hopefully occur in 2021) promise of a number of world-firsts, including live helicopter shots, longest sports coverage, new sports never seen before in 8K, and all available this year (or maybe next year when lockdown ends). Mix in the delight of an 8K opening ceremony with immersive audio and rich metadata, and I think it is safe to say that the future of broadcasting is within reach… or is it?

Despite advances in compression technology, 8K remains a bandwidth hog, and the re-engineering required to transform every terrestrial, satellite, cable, and over-the-top (OTT) network into 8K is unlikely to happen quickly. We are already starting to see national legal frameworks being modified to allow simultaneous streaming of events with a live broadcast to permit those with 8K IP capabilities to connect to a content delivery network (CDN) to experience its beauty.

We should not forget that 8K production followed by downsampling can bring benefits that are hard to achieve in any other way. One that excites me is the prospect of 8K, high dynamic range (HDR), high frame rate (HFR) capture that is then resampled in space and time, as well as cropped for traditional delivery. As a former springboard diver, the thought of finally being able to see Olympians grimace in super-duper slow motion as they struggle to land their 109b (i.e., 4½ somersaults in the pike position) knowing that I don't have to follow them is a real joy.

These overscan techniques are not limited to sports though. Many fine papers have been presented at SMPTE conferences and are available on the SmpteConnect YouTube channel that shutter speed, shutter angle, blur, and other controls are available in post-production if you start with a 300 frames/sec 8K master. I think we can be fairly certain that there will be growth in 8K production in the coming years. This will drive down prices and require revisions to underlying SMPTE standards that allow the images to reach the consumers.

If we create more 8K upstream, then the post, mastering, and distribution world will start to see more 8K, which in turn will spread downward to the consumer in ever-increasing volumes. Nobody knows in which order this will take place, but having been to a lot of video conferences over the past couple of months of lockdown, I think it's a safe bet to say that consumer 8K webcams to capture the details of your early-morning, precoffee face peeking over the collar of your pajamas is not likely to be a growth market just yet.

Lockdown is forcing our SMPTE standards meetings to go virtual. If 8K is your specialty or if you've always wondered what goes on in a standards meeting, then maybe now is the time to find out. Details of upcoming meetings are on the events page of smpte.org, and guests can participate by filling out an AG-15 guest participation form on the *About/Policies* page of our website. Don't be shy; the worst that can happen is that you'll discover that a lot of excitement can be generated by relatively few words in a relatively boring document in the middle of a relatively long meeting. The quality of SMPTE's standards is recognized globally because of the attention to detail required to deliver stable platforms upon which innovative entrepreneurs and big businesses alike can deliver excellence.

Digital Object Identifier 10.5594/JMI.2020.3000353
Date of publication: 8 July 2020

1545-0279/20©2020SMPTE