UltraHD is the next step for the ultimate home entertainment experience. Driven by a significant increase in sales of UHD TV sets, broadcasters are looking for solutions to address these early-adopter viewers while creating a foundation for the future standard of premium TV.

The ecosystem is ready: 4K-capable displays are now widely available, UHD set-top boxes are ready and able to decode up to 60 frames per second, and HEVC 10-bit broadcast encoders such as Thomson Video Networks’ ViBE® 4K https://www.thomson-networks.com/en/solutions/ultra-hd-solution are now commercially available from multiple vendors.

The transmission chain is just one piece of the ecosystem. What about content? On the live production side, events like the Tennis Open in Paris https://www.thomson-networks.com/en/news/thomson-video-networks%E2%80%999-new-vibe-4k-hevc-encoder-enabled-successful-live-4k-streaming-2015-fren have shown that UHD live production is becoming a reality, capable of delivering a pristine quality video experience at up to eight times the spatiotemporal resolution of current HD signals. During the event I visited the production facility: an existing HD 1080p50 OB van that was able to receive UHD signals from four cameras over a 4x 3-Gig infrastructure feeding a standard 1080p50 mixer.

But simply adding more pixels to the delivered content is not the whole story. For an even more immersive experience, High Dynamic Range (HDR) video delivers more realism and comes closest to what the human eye is able to perceive, just as if you were in the middle of the scene. Typical situations in which HDR creates a wow effect are scenes with low light and high light areas, such as sparkling metal, reflections on water, glittering lights, and stadiums in partial shade.

For HDR content delivery, multiple options are currently being discussed by the broadcast industry within standardization bodies. Thomson Video Networks is involved in those discussions with technology partners to understand the consequences, and requirements, for the transmission chain to carry HDR signals. Most likely, all options will converge to a 10-bit studio infrastructure for live production and will require a pre-processing module to feed a standard UHD HEVC 10-bit transmission encoder. Some specific HDR data will have to be transmitted on top of a Standard Dynamic Range signal. The very small overhead required by the HDR data will help a post-processing module on the decoder side to render the HDR
signal. Because the compression piece of the transmission chain can be agnostic to HDR signals, HDR becomes mainly an issue for content production (HDR grading, SDR grading) and content rendering on displays.