

Entertainment Challenges in Today's Digital Society



Part vi of vii

by Gabriel Dusil

6. Transcoding Challenges with H.265 HEVC & 4K UHD?

The video quality of entertainment is constantly improving, while viewing behavior is changing rapidly as well. H.265 (otherwise known as High Efficiency Video Coding, or HEVC) promises double the amount of video with the same bandwidth compared to H.264. Or viewed from a different perspective, video will be transmitted at half the bandwidth compared to H.264.

H.265 is becoming synonymous with 4K (4096x2160) and UHD (3840x2160). And true 4K from a broadcast perspective is becoming synonymous

optimize the quality of compressed content so that it is bandwidth efficient, while still maintaining consistent high quality. Even though H.265 promises 50% efficiency, we're not there yet as early tests reveal compression efficiencies to be between 15% and 35%. Bandwidth efficiency also translates to lower storage requirements which will be a welcome improvement for cloud service providers.

At the moment, encoding in H.265 is expected to take ten times longer than H.264 at the same frame size, so this will initially be a burden to encoding and transcoding services at the ingest stage. But this metric doesn't tell the whole story. H.265

encoding should also be understood from the context of 4K encoding and higher color bit depth. Figure i attempts to show the encoding burden against time, represented along the horizontal axis¹.

When 4K becomes mainstream, and with 4K frames at four times the size of HD frames, it is estimated that encoding will take 40x longer than today's HD @ H.264. That's assuming we'll be happy with 8-bit encoding (typically found in Blu-Ray and DVD movies). Time will tell whether the industry will accept 8-bit at 4K. It's also possible that 10-bit will be synonymous with 4K, or maybe even 12-bit as the technology matures.

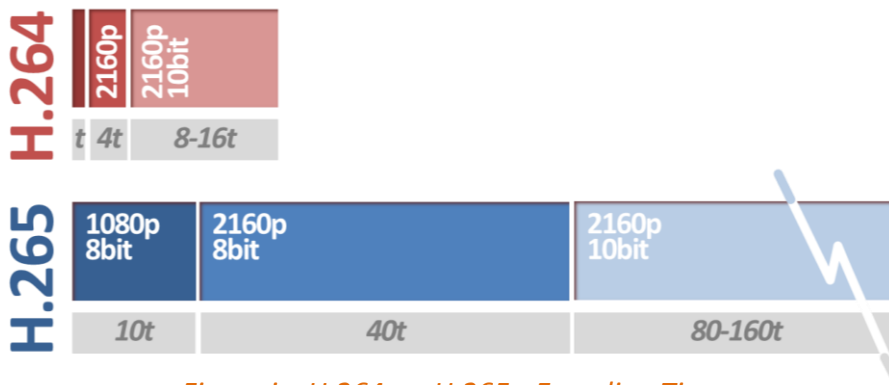


Figure i – H.264 vs. H.265 - Encoding Time

with HDMI 2.0. These three technologies need to converge to bring consumers to the next level in digital video.

The foundations of the H.265 standard were finalized over different stages throughout 2013, but it will still take time before consumers see this codec supported in consumer electronics. In addition, the industry still has to learn how to

Time will tell...

¹ These are just estimates, and have not yet been lab tested.

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• Synopsis

• Understanding the entertainment market from ten thousand meters helps industry executives make strategic decisions. This leads to tactical initiatives that drive innovation, new services, and revenue growth. This Q&A series takes a top level

view of today's digital landscape and helps decision makers navigate through the latest technologies and trends in digital video. Gabriel Dusil, Chief Marketing & Corporate Strategy Officer from Visual Unity discusses the ongoing developments in Over the Top (OTT) services, how these platforms are helping to shape today's digital society, and addresses the evolving changes in consumer behavior. Topics include 2nd Screen, 4K Ultra High Definition video, H.265 HEVC, global challenges surrounding content distribution, and the future of OTT.

• About Gabriel Dusil

• Gabriel Dusil is the Chief Marketing & Corporate Strategy Officer at Visual Unity. His mandate is to advance the company's portfolio into next generation solutions and expand the company's global presence. Before joining Visual Unity, Gabriel was the VP of Sales & Marketing at Cognitive Security, and Director of Alliances at SecureWorks, responsible for partners in Europe, Middle East, and Africa (EMEA). Previously, Gabriel worked at VeriSign & Motorola in a combination of senior marketing & sales roles. Gabriel obtained a degree in Engineering Physics from McMaster University in Canada and has advanced knowledge in Online Video Solutions, Cloud Computing, Security as a Service (SaaS), Identity & Access Management (IAM), and Managed Security Services (MSS).

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• Tags

• 4K, Broadcast, Connected TV, Digital Rights, Digital Video, DRM, Gabriel Dusil, H.265, HEVC, Internet Piracy, Internet Video, Linear Broadcast, Linear TV, Multi-screen, Multiscreen, New Media, Online Video, Online Video Platform, OTT, Over the Top Content, OVP, Recommendation Engine, Search & Discovery, Search and Discovery, second screen, Smart TV, Social TV, TV Everywhere, TV Anywhere, Ultra HD, Ultra High Definition, Visual Unity