



8K Video Compression



Thomas Burnichon
Director of Technology
t.burnichon@ateme.com

One Step Closer to the Real Thing

Higher resolution



High Dynamic Range (HDR)



Wide Color Gamut (WCG)



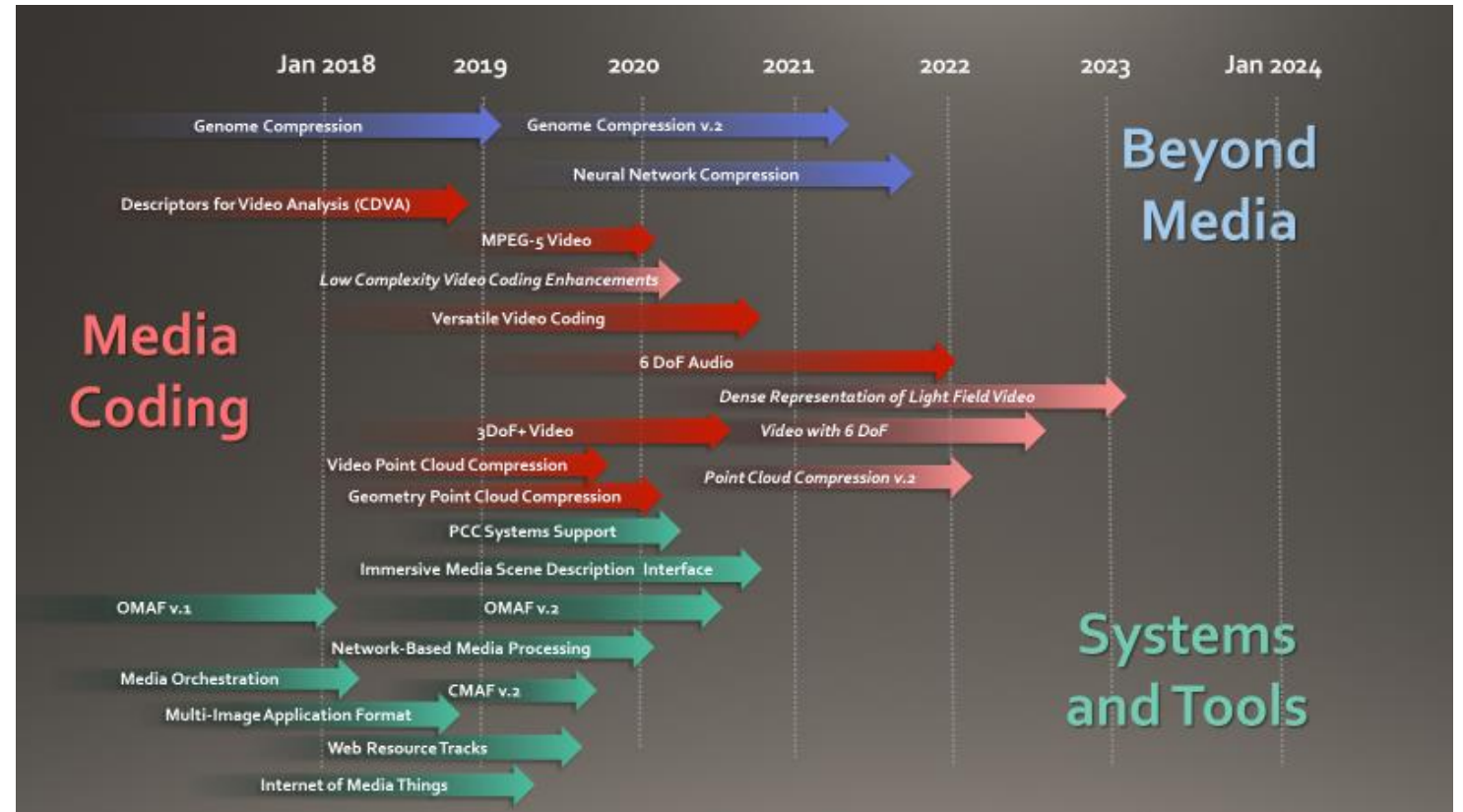
High Frame Rate (HFR)



Image: 4EVER

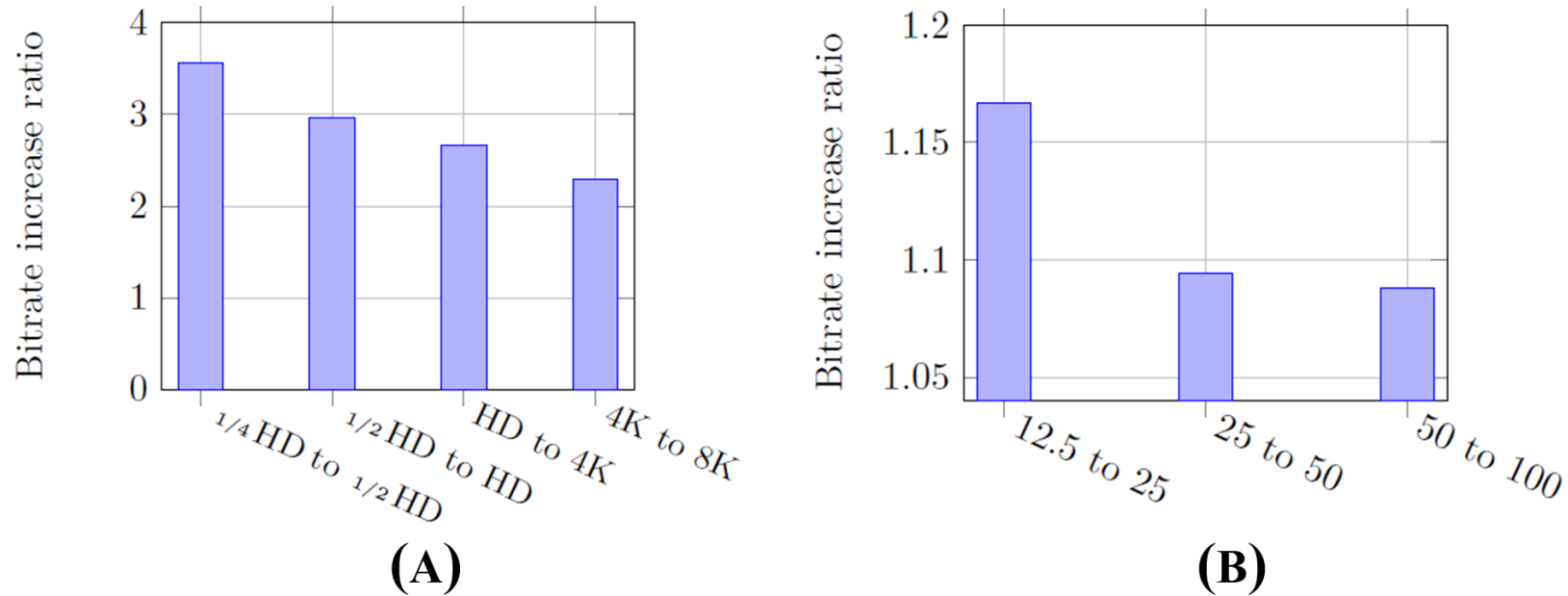
Future Video CODEC

- EVC
 - Essential Video Coding aka MPEG-5 part 1
 - Early 2020
 - Royalty free baseline >AVC
 - Royalty friendly main >HEVC
- VVC
 - Versatile Video Coding aka MPEG-I part 3
 - Mid 2020
 - Targets -50% vs HEVC
- AV2
 - AOMedia Video 2



Source: MPEG Standardization Roadmap as Published in meeting MPEG 125 - Marrakesh

For Distribution, Pixels x 4 ≠ Bitrate x 4



(A) **(B)**
FIGURE 3: HEVC BITRATE INCREASE RATIO WHEN DOUBLING **(A)** HORIZONTAL AND VERTICAL RESOLUTION FOR RESOLUTIONS RANGING FROM 480X270 TO 4K, OR **(B)** TEMPORAL RESOLUTION FOR FRAMERATES RANGING FROM 12.5 TO 50 FPS.

Source: Thomas Guionnet, Mickaël Raulet, Thomas Burnichon “Forward-looking content aware encoding for next generation UHD HDR WCG HFR” NAB paper, April 10, 2019

8K Target Bitrates

Coding	Live	File
HEVC	60-80Mbps	40-50Mbps
VVC	30-40Mbps	20-25Mbps

Based on initial test results and foreseeable technology trends, subject to change as 8K workflows mature

NAB 8K Demo @ Booth #SU6005

- Content
 - Courtesy of TF1 and The Explorers
 - 7680x4320p50
 - HDR: ST 2084 PQ
 - WCG: BT.2020
 - Shot on RED Helium
- Display
 - Courtesy of Samsung
 - 82" Q900RB
 - MSRP \$9999.99
- Compression
 - Courtesy of ATEME :)
 - 40Mbps in HEVC Main 10 (4:2:0 10-bits)
 - 20Mbps perspectives with VVC/EVC

