Evaluating the Effectiveness Of Your H.264 Encoder

by Robert Reinhardt

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Not all video encoders are created equal. In this session, the real-world video outputs of top commercial H.264 encoders are compared, including those from Telestream, Harmonic, Sorenson, and Adobe, as well as open-source options such as FFmpeg and x264. Learn what features you should have available in an encoding tool before you invest your organization's budget in a solution.
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there is no definitive way to encode
Evaluating the Effectiveness of Your H.264 Encoder

- Cost
- Quality
- Speed
basics of compression parameters:

- Dimensions
- Frame Rate
- Video codec and profile
- Audio codec (and profile)
- Video bitrate
- Audio bitrate
- Audio channels
- Audio sampling rate
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Key controls of a high performant H.264 encoder:

- Multiple H.264 codecs (MainConcept, x264)
- B-Frame Controls
- Profile Control (Baseline, Main, High)
- Read ahead (or look ahead)
- Reference Frame Count
- VBV Buffer size
- Entropy type
- Encoding type (CBR, VBR)
Restrictions to keep in mind:

- Less than 16 reference frames for Main/High profile
- 1 to 3 reference frames for Baseline profile
- A fixed GoP (keyframe interval) for adaptive streaming
Chart of Features

- VOD Encoders
- Live Encoders
Encoding tests

- Preset #1 : Baseline VBR Quality-Based Dynamic GoP
- Preset #2 : Baseline VBR Max Bitrate Dynamic GoP
- Preset #3 : Baseline CBR Fixed GoP
- Preset #4 : Baseline VBR Fixed GoP
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Encoding tests

- Preset #5: Main VBR Quality-Based Dynamic GoP
- Preset #6: Main VBR Max Bitrate Dynamic GoP
- Preset #7: Main CBR Fixed GoP
- Preset #8: Main VBR Fixed GoP
Observations

- Baseline encodes fairly comparable
- FFmpeg rivals with Main profile (B-Frame options)
- HLS manifests need to reflect actual maximums
- Adobe Media Encoder creates reasonable Baseline
- Sorenson Squeeze 9: No x264 reference frame control
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Recommendations

- FFmpeg is the most cost effective encoder
- Use polished source files with any encoder
thank you.
Robert Reinhardt, Founder, videoRx.com

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