Ogg Theora and CELT

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Ogg Theora: Activity

- Native support in Firefox alpha releases

- v1.0 released

  – Features new decoder from the betas

- Monty's "thusnelda" encoder slated for v1.1

  – Uses `theora-exp` motion search, mode decision

  – New R-D optimization a big step towards improved quality

  – Still needs to be done:

    • New rate control module (also two-pass encoding)

    • Support for 4:2:2 and 4:4:4 input

    • Spatially adaptive quantization (edge/texture/smooth regions)

Ogg Theora: Next Steps

- Decoder

  - ARM/DSP optimization (Nokia N8x0, etc.)

- Encoder

  - Make "thusnelda" the new mainline for v1.1

    - Still much work to do before it is ready

- Opera/Firefox integration

  - The codec issue in HTML5 is still not resolved

  - A defacto standard is better than nothing

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CELT: Activity

- New project by Jean-Marc (creator of Speex)

  - CD-quality audio codec with < 10 ms delay

  - Working encoder+decoder, fixed point implementation, ported to C55x and C64x DSPs, special "low-complexity" mode, etc.

- v0.5.1 released, 0.6 in the works

  - Already better than MP3, with less than 1/10th the delay (not likely to beat Vorbis, though)

  - Better than other proprietary competition in this space (G.722.1C, AAC-LD, ULD)

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CELT: Next Steps

- Finalize design

  - Still need to experiment with some details

    - Dynamic rate allocation (hard, since at ~200 packets/sec, any side information has a huge cost)
    - Stereo coupling (currently using simplistic method)
    - Pitch prediction (currently only helps at low rates/for speech)

- Freeze bitstream format

  - More difficult than most codecs, because we send almost no side information

    - Many decisions in the encoder become normative

  - Possible IETF AVT draft submission in March

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