

Soothe

GStreamer Conference 2025

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The problem

- While developing vulkanh264enc (h264encoder 🤗)
 - Need a way to test the encoder
 - Encoders have multiple independent knobs
 - ➡ combinatorial explosion

What kind of tests?

- Structural
 - GOP
- Bit-rate compression
- Perceptual 
 - VMAF

Soothe

Fluster's encoder/dark side :)



- It's a testing framework written in Python for encoder quality.
- It's a command line interface application that runs a number of test suites with the supported encoders.
- Its purpose is to compare different encoder implementations and configurations.
- It uses VMAF binary to measure the transcoded videos.

Components

- Assets
 - well known raw streams
- Transcoder
 - copy
 - VA / Vulkan
- Tests
 - encoder's configurations

Test stages

- Encoding
 - keep encoded file for stats
- Decoding
 - get structural data
- Perceptual comparison (VMAF)
 - original vs decoded
 - per frame / global

Questions

- Where to handle the combinations?
 - one test per configuration?
 - one test with multiple configurations?
 - auto-generated tests with stochastic configurations
- Encoders expose different knobs
 - a set of tests per encoder?

