

IETF 85

video-codec BoF

Process

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# Introduction

- This is a proposal for how to do the work
  - Just a starting point (comments welcome!)
  - Nothing here overrides standard IETF process
- This is not the requirements
  - Refer to draft-maxwell-videocodec-requirements

# Proposed Process

- 1) Identify requirements
- 2) Solicit codec contributions
  - Under the IPR rules of the IETF (BCP 78 & 79)
- 3) Iteratively improve requirements based on
  - Received contributions
  - Collaboration with other WGs
- 4) Evaluate strengths and weaknesses of the contributions

# Proposed Process (cont.)

5) Choose starting point for development based on one or more contributions (no final decision)

6) Iteratively improve/rewrite/replace any component of the codec

- Any change allowed if it helps meet requirements
  - As decided by regular IETF rough consensus
- Any interested party can contribute to development

7) Characterization of final codec

# Intellectual Property

- Goal is to have royalty-free technology
  - SHOULD be distributable without negotiating a license, entering a business agreement, paying royalties, or meeting other special conditions (NDAs)
  - We understand we cannot guarantee this outcome
- From charter: “Developed under the IPR rules of the IETF”
  - BCP 78 and 79
- BCP 79, Section 8: “In general, IETF working groups prefer technologies with no known IPR claims or, for technologies with claims against them, an offer of royalty-free licensing.”

# Intellectual Property (cotd.)

- BCP 79, Section 6.4.1
  - “The disclosure must list the numbers of any issued patents or published patent applications or indicate that the claim is based on unpublished patent applications.”
  - “The disclosure must also list the specific IETF or RFC Editor Document(s) or activity affected.”
    - May be prudent to use multiple, smaller drafts
- BCP 79, Section 6.4.3
  - “The requirement for an IPR disclosure is not satisfied by the submission of a blanket statement of possible IPR on every Contribution.”

# Relationship with Other SDOs

- Other SDOs doing video codecs
  - ITU-T SG 16
  - ISO/IEC JTC1/SC29 WG11 (MPEG)
  - SMPTE
- No natural monopoly on video codecs
- Cooperation with other SDOs welcome

# Relationship with Other SDOs (cote.)

- “Uncoordinated Protocol Development Considered Harmful” (RFC 5704)
  - “[T]he IAB considers it an essential principle of the protocol development process that only one SDO maintains design authority for a given protocol, with that SDO having ultimate authority over the allocation of protocol parameter code-points and over defining the intended semantics, interpretation, and actions associated with those code-points.”
- No harm possible here
  - No code-point collision
  - All signaling technology can negotiate codecs
  - Transport protocols are designed to support any codec



# Testing and Characterization

- Continuous testing (during development)
  - Informal tests (see draft-terriberly-codingtools-00 for examples)
  - Possible measures
    - IPR safety (available on RF terms, 20+ years old, etc.)
    - Quality per bit (PSNR, SSIM, visual comparison)
    - Complexity (hardware or software)
    - Simplicity (of implementation)
    - Robustness (to packet loss; to bit errors is “nice to have”)
    - Congestion control responsiveness
- Formal characterization
  - The IETF is a volunteer organization
    - Any test plan must have a volunteer willing to perform the tests

# Specification and Conformance

- Specify behavior required for interoperability
  - Primarily decoder behavior
  - Bit-exact output required for practical reasons
    - Conformance tools, test vectors required
    - Does not preclude post-processing outside of the decoder
- Specification in normative prose
  - Symbolic/mathematical notation okay if well-defined
- Software reference implementation corresponding to “best-known implementation”
  - Where should this live?