New Revision of the Interactive Connectivity Establishment (ICE)

draft-keranen-mmusic-rfc5245bis-01

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Ari Keränen
ari.keranen@ericsson.com
Where are we now

- 5245bis-00: same as RFC5245 with editorial fixes
- SIP/SDP specifics split from the main spec
  - 5245bis-01
  - draft-petithuguenin-mmusic-ice-sip-sdp-01
  - RFC 6336 (ICE option registry) merged to ice-sip-sdp-01
- Updated IPv6 address selection rules
  - RFC6724 obsoleted RFC3484
Open Issues

• SDP split - the right thing to do?
• Media level ICE options
• (IPv6) address selection update
• ice-option: willing and/or able?
• Connectivity check pacing
• Updated offer
SDP split

• Pros
  – ICE is used a lot in non-SIP environments
  – Easier read for non-SIP implementers (no need to wonder what is not needed)
  – Shorter doc (bis-01 < 90 pages)

• Cons
  – SIP/SDP implementers need to read two docs
  – Still talks about “offer and answer”; refers (informatively) to the SDP o/a RFC3264
    • should re-define terminology?
SDP split

• Seems like a good idea
• Proposal: go forward with this approach
  – Replace offer/answer with “ICE request” and “ICE response” to mean exchanging of ICE session parameters & candidates
• Need for separate RTP usage document?
Media level ice-options SDP attribute

• Currently: ice-options only at session level
• Proposal: allow both session and media level ice-options
(IPv6) Address Selection

• Currently
  – IPv6 link-local & Unique Local Addresses (ULAs) paired with all IPv6 candidates
  – No text about loopback candidates
  – Relayed candidates are paired with private IPv4 address space (e.g., 10.x.x.x) candidates and IPv6 ULAs and link-locals
(IPv6) Address Selection

• Proposal
  – MUST NOT use loopback or deprecated candidates
  – MUST pair link-locals only with link-locals
  – Use OS API (if available) for priorities
  – Pair ULAs only with ULAs and globals
    • Option #2: ULA-globals as low-priority
  – Don’t pair relayed with IPv4 private address space or IPv6 link-local addresses or ULAs

(from draft-keranen-mmusic-ice-address-selection-01)
ice-option: willing and/or able?

• Currently: unclear if option tag in the offer/answer means that one can or will do that
  – Relevant for Trickle ICE
• Proposal: clarify that it’s “can and will”
  – rtp+ecn already does this
• Option #2: additionally separate tag for “can do” (will do only if the peer wants)
Check Pacing (Background)

- For non-RTP traffic, current min 500ms
  - (Overly) “safe choice”
  - Poor performance (slow to start checks)
  - Implementations seem to ignore the MUST

- Concerns
  - Creating new NAT bindings too fast
  - Port consumption
  - Congestion control
Check Pacing Concerns

• Creating new NAT bindings too fast
  – faster than 20ms often fails

• Port consumption
  – NAT (esp. CGN) may run out of ports
  – Need to (further) limit candidate count?
    • Currently RECOMMENDED max 100 candidates

• Congestion control
  – Don’t use more bandwidth than the data?
Check Pacing Proposal

• MUST NOT set lower than 20ms
• RECOMMEND 100ms if no better info
  – Or 50ms as with browsers?
• MAY use external information if available or RTP-like formula
  – Appendix on this topic?
• Signal pacing value in offer/answer: pick higher of the two
Updated Offer

• When ICE is finished, send new SDP offer/answer with the selected candidates?
• Currently: only if different from default
• Pros for always
  – More consistent behavior for middle boxes
• Pros for never
  – Issues with 3rd Party Call Control and fax (draft-elwell-ice-updated-offer)
Updated Offer Proposals

• Proposal #1: always
• Proposal #2: never
• (#3 need more work?)
To-Do

• SDP-split still work-in-progress
• General extensibility considerations
• Backward compatibility signaling?
• Other issues
  – looking forward to your comments
• WG adoption