SDP Source Selection

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draft-lennox-mmusic-sdp-source-selection-00.txt

Note well: Vidyo has potential IPR on this draft; see https://datatracker.ietf.org/ipr/1170/
Motivating Architecture

- Multimedia conference
- Server forwards multiple senders’ streams to receivers (unmixed).
- Receivers can select specific streams to receive.

“I want to see Bob”
Architecture: details

• Multimedia conference; server forwards streams to participants.
  – Like Topo-Mixer, Topo-Video-switch-MCU, etc., but forwarding multiple (unmixed) streams.
• Server notifies participants of available streams.
• Participants can either explicitly request streams, or let the server choose.
• In a large conference, having a separate m= line for each available stream doesn’t scale.
  – Server port consumption, NAT bindings, ICE setup, etc.
• Instead, send sources of the same media type over a single connection, distinguished by SSRC.
Remote Source Attributes

- Build on source attributes (RFC 5576)
  - a=ssrc:12345 foo:bar
- Define a new attribute, remote-ssrc
  - a=remote-ssrc:67890 baz:quux
  - Roughly, the “answer” to ssrc’s “offer.”
- Recipient learns about available sources.
  - From ssrc attribute in SDP; SIP/XCON conference package; in-band.
- Recipient sends remote-ssrc for sources it does, or does not, want to receive, along with parameters for how it wants to receive the sources.
Specific remote source attributes

• “recv” and “inactive”
  – I want this / don’t want this.

• “priority”
  – If you don’t have enough bandwidth, these ones are more important.

• “imageattr” (Video only)
  – I’m planning to display in this resolution; come as close as you can.
  – Syntax from draft-ietf-mmusic-image-attributes

• “framerate” (Video only)
  – I’m planning to display at this frame rate; come as close as you can.
New source attributes

• “send” / “inactive”
  – Answer “recv” / “inactive” remote-source attributes
• “information”
  – Like the SDP i= line
  – Provides textual information about a source, for human consumption.
Offer/Answer procedures

• If you receive a `remote-ssrc:` attribute in an offer, put a matching `ssrc: send` or `inactive` attribute in the answer.

• If you receive `remote-ssrc:` in an answer, no immediate response is necessary, but put `ssrc: send` or `inactive` in your next offer (if the source is still present).

• Regardless, always list all your available sources in `ssrc:` attributes, unless they’re being provided by some other means.
  – E.g., the SIP/XCON conference package.
Open issues

• What to do following an SSRC collision
  – You could be requesting the wrong source?
  – I think the RFC 5576 procedures will handle this.

• Backward compatibility
  – Servers might want to treat endpoints that support this draft, but don’t want any specific sources right now, differently from endpoints that don’t support the draft.