Partial Offer / Partial Answer

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Refresher: Mechanism Overview

• Send just media sections (m= lines) to add/remove/modify streams rather than whole SDP.
• The goal is reducing (and, in certain cases, eliminating) glare.
• Media sections are identified by their MID
  – New MIDs are new sections
  – Existing MIDs correspond to stream removal (port = 0) or stream modification (port > 0)
Open Issue 1: Handling Groups

• Format is currently defined to be a single o= line followed by one or more m= sections (i.e., contain no session-level attributes)
• RFC5888 a=group lines appear at session level
• Including group lines in partial descriptions increases the possibility of glare significantly
• At a bare minimum, this must work properly for BUNDLE. It would ideally work for other groups (LS, FID, etc.)
Open Issue 1: Handling Groups

• First option: Fix only for BUNDLE by implicitly managing bundle membership by port numbers (lines with same port = same bundle group)
  – **Pro**: Very simple, requires no new syntax
  – **Con**: Requires full offer/answer to handle any other kind of group
Open Issue 1: Handling Groups

• Second option: Define identification semantics for RFC 5888 groups and include group-line identity in media section.
  – Suboption A: consider groups ordered, and identify group by ordinal
  – Suboption B: identify group by minimal subset of members necessary to uniquely identify it

• Pros: Generally works for all groups

• Cons: Requires introduction of elements in media sections that are valid in partial descriptions, nonsense in full descriptions
Open Issue 1: Handling Groups

• Third option: Scrap RFC 5888 altogether and design a new grouping mechanism
  – **Pros**: Allows us to address known shortcomings of existing mechanism
  – **Cons**: Not backwards compatible
Open Issue 1: Recommendation

• Second option, suboption B

Original session:

v=0
o=-- 289083124...
c=IN IP4 192.0.2.1
t=0 0
a=group:LS ABC DEF
m=audio 30000 RTP/AVP 0
a=mid:ABC
m=video 30002 RTP/AVP 31
a=mid:DEF

...plus partial offer:

o=-- 289083125...
m=video 30004 RTP/AVP 31
a=mid:GHI
a=add-group:ABC

...results in final session:

v=0
o=-- 289083125...
c=IN IP4 192.0.2.1
t=0 0
a=group:LS ABC DEF GHI
m=audio 30000 RTP/AVP 0
a=mid:ABC
m=video 30002 RTP/AVP 31
a=mid:DEF
m=video 30004 RTP/AVP 31
a=mid:GHI
Open Issue 1a: New Groups

• Regardless of the preceding approach, we may want to define a means for creating a new group in a partial offer.

• This seems to be comfortably covered by allowing an a=group attribute between the o= line and the first m= line, but only if the group is brand new.

• **Recommendation**: Specify this as allowed.
Open Issue 2: Multiple Changes

• Current text allows only one “change” at a time
  – “Add” and “remove” can be grouped together in arbitrarily large partial descriptions

• The rationale here is that since we’re taking extraordinary steps to avoid glare, it would be nonsensical to increase the glare surface by including multiple streams at once

• On the other hand, nothing in the processing precludes having multiple changes, so we could allow it with an appropriate implementor warning.
  – Although we would have to modify processing to check for change-related glare on all media sections before any other processing began
Open Issue 2: Recommendation

• Revise document to allow multiple media section changes in a single partial offer, but add strong warning about increased chance of glare.
Open Issue 3: Multiple Outstanding Offers

• Currently prohibited due to complexity of resolving media section ordering when incoming offers happen at the same time

• Does anyone have a use case that would be frustrated by this?

• **Recommendation:** Keep as-is (only allow one outstanding partial offer at a time).
Open Issue 4: Overlapping media section “add” with one side rejecting the partial offer

- What?
- Send a partial offer adding media sections A, M, and Z.
- Receive a partial offer adding media sections F and S.
- Send a partial answer accepting media sections F and S.
- New sections are now known to be in the order A, F, M, S, Z.
- Receive protocol-level rejection of the partial offer we sent (with A, M, and Z).
- We now need to change our local view of the session to remove A, M, and Z.
- **Recommendation:** Media lines are not sorted, are not applied to session while any partial offers (sent or received) are pending.
Ambiguity 1: Changing Bundle Port

• What if a media line is added to a BUNDLE but has a different port than the rest of the sections in that BUNDLE?
  – Really, this shouldn’t matter, since only the first line in a bundle affects the port.
  – But we want to be clear about intention.

• **Recommendation:** Prohibit this. If the BUNDLE port needs to be changed, that’s cause for a full offer/answer.
Ambiguity 2: Reordering

• The various glare resolution procedures assume that messages will arrive in-order
  – SIP doesn’t guarantee this inherently, but this guarantee can be overlaid on top of existing mechanisms.

• Tolerating reordering would complicate mechanism significantly.

• Recommendation: Clarify that in-order delivery of signaling messages is prerequisite for using this mechanism.
Bikeshed Color Choice 1: MIDs

• We need some way to guarantee that MIDs don’t collide
• Current draft uses long, random strings
  – Probably don’t need to be so long: current document uses ~202 bits of randomness.
• If there’s some way to own a prefix for creation of MIDs, we don’t need to worry about randomness
  – Have ideas? Send text.