Aligning JSEP + BUNDLE

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Recap: What was the issue?

- JSEP and BUNDLE specified contradictory ways of generating SDP offers and answers when bundling is presumed or accepted
- The most common implementation differed from both of these specs as well; the deviation was most significant when using the **max-bundle** BundlePolicy

Recommendations from IETF 110

1. Switch BUNDLE spec to use JSEP behavior
   - Upside of BUNDLE SDP syntax change outweighed by risk to existing apps
   - Document that a=bundle-only in answers should be accepted but not generated
2. Update JSEP to deprecate **max-bundle** BundlePolicy
   - To protect existing apps, create a new policy that has the spec-defined behavior, and leave **max-bundle** behavior as-is in existing implementations
   - Christer proposed **must-bundle** as the new name, which SGTM

Agreed-upon SDP (balanced)

Offer:
a=group:BUNDLE 0 1
m=audio 10000 blah blah
a=mid:0
a=ice-ufrag:ufrag1
a=ice-pwd:pwd1
m=video 10001 blah blah
a=mid:1
a=ice-ufrag:ufrag2
a=ice-pwd:pwd2

Answer:
a=group:BUNDLE 0 1
m=audio 10000 blah blah
a=mid:0
a=ice-ufrag:ufrag1
a=ice-pwd:pwd1
m=video 10000 blah blah
a=mid:1

Agreed-upon SDP (must-bundle)

Offer:
a=group:BUNDLE 0 1
m=audio 10000 blah blah
a=mid:0
a=ice-ufrag:ufrag1
a=ice-pwd:pwd1
m=video 0 blah blah
a=mid:1
a=bundle-only

Answer:
a=group:BUNDLE 0 1
m=audio 10000 blah blah
a=mid:0
a=ice-ufrag:ufrag1
a=ice-pwd:pwd1
m=video 10000 blah blah
a=mid:1

New text in RFC 8829-bis (intro)

When [RFC8829] was published, an inconsistency regarding BUNDLE [RFC8843] operation was identified concerning both the specification text as well as implementation behavior. The former concern was addressed via an update to [RFC8843]. For the latter concern, it was observed that some implementations implemented the "max-bundle" bundle policy by assuming that bundling had already been negotiated, rather than marking "m=" sections as bundle-only as indicated by [RFC8829]. In order to prevent unexpected changes to applications relying on the pre-standard behavior, the decision was made to deprecate the use of "max-bundle" and instead introduce a new "must-bundle" policy that, when selected, provides the correct behavior.

New text in RFC 8829-bis (BundlePolicy)

Replaced max-bundle with must-bundle throughout the document, and added this blurb:

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[RFC8829] defined a policy known as "max-bundle", which, while
defined identically to the "must-bundle" policy described above, was
implemented by some implementations according to an earlier, pre-
standard definition (in which, for example, no "m=" sections were
marked as bundle-only).  As a result, "max-bundle" is considered
deprecated, and new applications should use the "must-bundle" policy
instead.
```

Issue with 3PCC

Roman Shpount noted that with the newly agreed-upon JSEP behavior, subsequent offers do not contain the zero port behavior that ensures deterministic handling by a non-BUNDLE endpoint. Thus, in a 3PCC scenario, a non-BUNDLE endpoint could receive such an offer.

This is a good observation, but given the 99.9% adoption rate of BUNDLE, the fact that most legacy devices are audio-only (where the issue does not exist), and the fact the streams are already bundled (meaning the legacy endpoint has minimal ability to negotiate a graceful degradation) I suggest that we dismiss this as a corner case.

Other Questions?