Plan B

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Requirements

- Support for a large number of arbitrary sources
- Receiver control of sources
- Glareless additional/removal of sources
- Interworking with legacy devices
- Avoidance of unnecessary port allocation
- Simple binding of MediaStreamTrack to SDP
- Support for RTX, FEC, simulcast, layered coding
- Works with or without BUNDLE

Features

- **Each media type goes into its own m-line**
  - Multiple MSTs and encodings share the same m-line
  - # of m-lines is, by default, # of media types
- **Optionally, a MST can be grouped into a specific m-line**
  - E.g., "main video" versus "slides"
  - For each m-line, a "default" MST is designated (for legacy compat)
- **RFC 5576 (a=ssrc) used to describe MSTs**
  - MSID used to pair an SSRC with a MST
  - a=remote-ssrc from [draft-lennox-source-selection] used to control flow direction/resolution
  - a=ssrc-group + RFC 4588, 5956 used for RTX, FEC flows
- **Demux on SSRC to separate MSTs within m-line**
  - Degrades gracefully in case of 1 MST per m-line (i.e. legacy)
- **Normal ICE gather for all m-lines**
  - Can use BUNDLE to optimize down to 1 ICE
- **New O/A to add/remove sources, or change sources received**
  - Source *definition* is declarative (here's what I plan to send)
  - Source *receipt* is part of O/A
  - As such, no glare

Sample Offer

```
a=msid-semantics:WMS            // I understand SSRCs and MSTs

m=audio 49170 RTP/AVP 101       // main audio
a=ssrc:1 msid:left-mic          // declare 3 outgoing audio sources, each with unique MSID
a=ssrc:2 msid:center-mic
a=ssrc:3 msid:right-mic
[Candidates]

m=video 62537 RTP/SAVPF 96      // main video
a=ssrc:4 msid:left-cam          // declare 3 outgoing video sources
a=ssrc:5 msid:center-cam        // one source is simulcasting at two resolutions, same codec
a=ssrc:5 imageattr:* [1280, 720]
a=ssrc:51 msid:center-cam       // different SSRC, same MSID for simulcasts
a=ssrc:51 imageattr:* [640, 360]
a=ssrc:6 msid:right-cam
a=ssrc-group:SIMULCAST 5 51
[Candidates]

m=video 62538 RTP/SAVPF 96      // presentation
a=content:slides                // [media, content] tuples must be unique in m= lines
a=ssrc:8 msid:slides            // app decision to do this; could have been put in the m=video line above
a=ssrc:9 msid:slides            // RTX SSRC
a=ssrc-group:FID 8 9            // declaration that SSRC 9 is a repair flow for 8
[Candidates]
```

Sample Answer, Plan B

```
a=msid-semantics:WMS              // I understand SSRCs and MSTs

m=audio 39170 RTP/AVP 101         // main audio
a=ssrc:101 msid:center-mic
a=remote-ssrc:1 recv:on           // just turn on the center mic
[Candidates]

m=video 52537 RTP/SAVPF 96        // main video
a=ssrc:105 msid:center-cam
a=remote-ssrc:5 recv:off          // explicitly turn off the 720p feed
a=remote-ssrc:51 recv:on          // explicitly turn on the 360p feed
a=remote-ssrc:51 imageattr:*,[720,540]
a=remote-ssrc:51 priority:1       // lower priority than slides (in this application)
[Candidates]

m=video 52538 RTP/SAVPF 96        // presentation
a=content:slides
a=remote-ssrc:8 recv:on           // turn on the slides feed with higher priority
                                  // FID is sent implicitly (unless explicitly rejected)
a=remote-ssrc:8 priority:2        // (sender uses priority when making BW decisions)
[Candidates]
```

Sample Answer, Legacy

```
// Since endpoint doesn't understand a=ssrc or MSTs, sender should decide on a single SSRC
// to send for each m=line, e.g. center-mic, center-cam (360p), slides
// This results in the generation of a MediaStreamTrack with id "default" at the offerer.

m=audio 39170 RTP/AVP 101        // main audio
[Candidates]

m=video 52537 RTP/SAVPF 96      // main video
[Candidates]

m=video 52538 RTP/SAVPF 96      // presentation
a=content:slides
[Candidates]
```

Comparison with Plan A

Requirement	Plan A	Plan B
Support for a large number of arbitrary sources	Yes	Yes
Receiver control of sources	Some	Yes
Glareless addition/removal of sources	Yes, with extra 0.5 RTT	Yes
Interworking with legacy devices	Yes*	Yes*
Avoidance of unnecessary port allocation	Yes	Yes
Simple binding of MediaStreamTrack to SDP	???	Yes
Support for RTX, FEC, simulcast, layered coding	Can get out of sync	Yes
Works with or without BUNDLE	No	Yes