

Using Simulcast in RTP Sessions

draft-westerlund-avtcore-rtp-simulcast-03

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IPR Disclosure

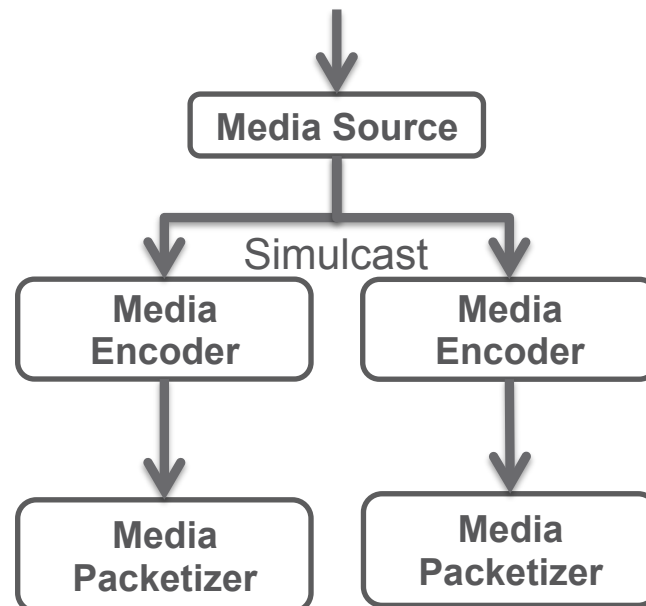
- › For referred draft-westerlund-avtcore-rtp-simulcast
 - <http://datatracker.ietf.org/ipr/1637/> (Ericsson)
 - <https://datatracker.ietf.org/ipr/1931/> (Microsoft)
 - <https://datatracker.ietf.org/ipr/2157/> (Microsoft)

Presentation Goal

- › Establish consensus on needed RTP level simulcast features
 - Signaling (SDP) level discussion taken separately in MMUSIC

Simulcast Definition

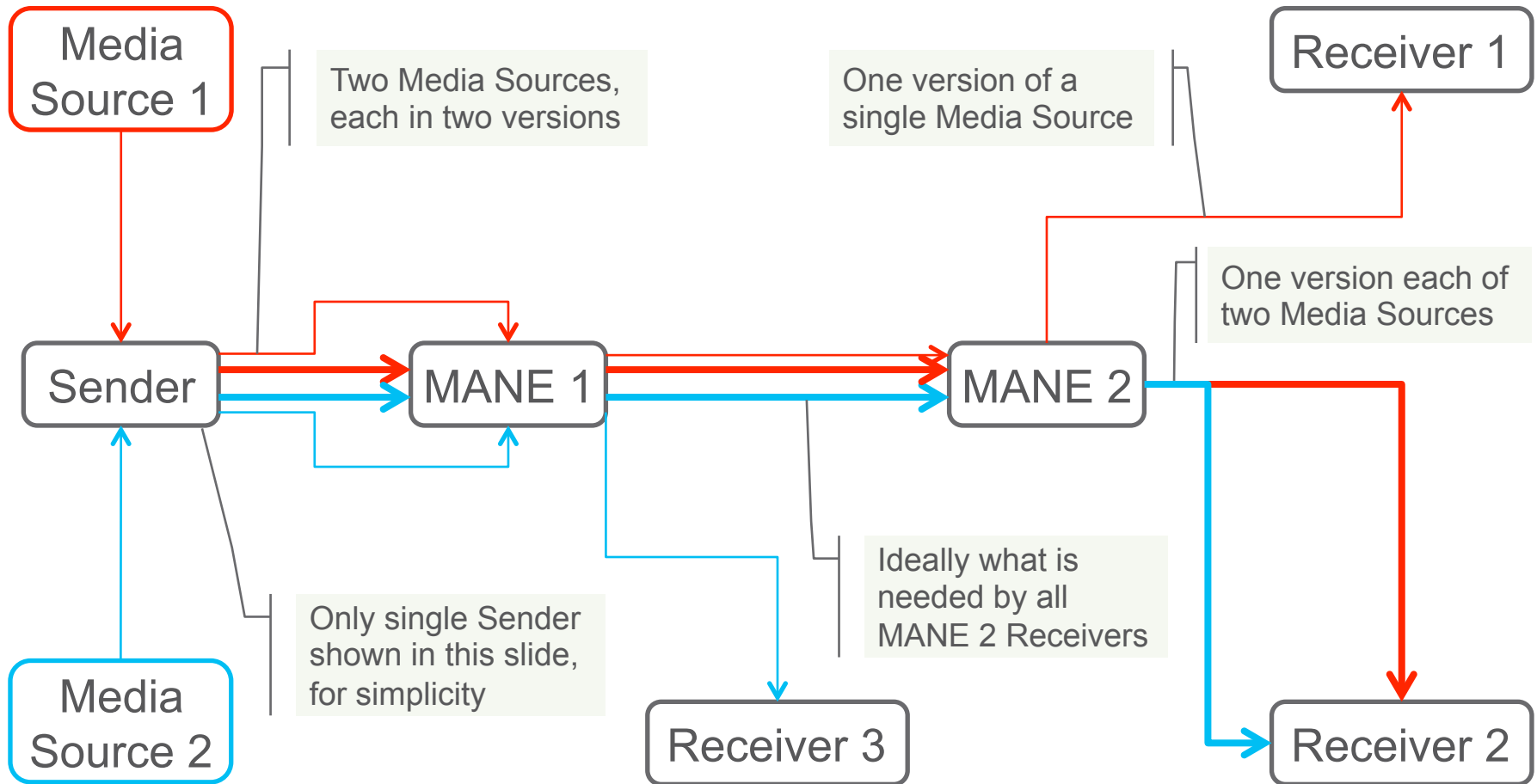
- › Simulcast is simultaneous transmission of multiple different and independent Encoded Streams originating from the same Media Source
 - Terms from RTP Taxonomy draft



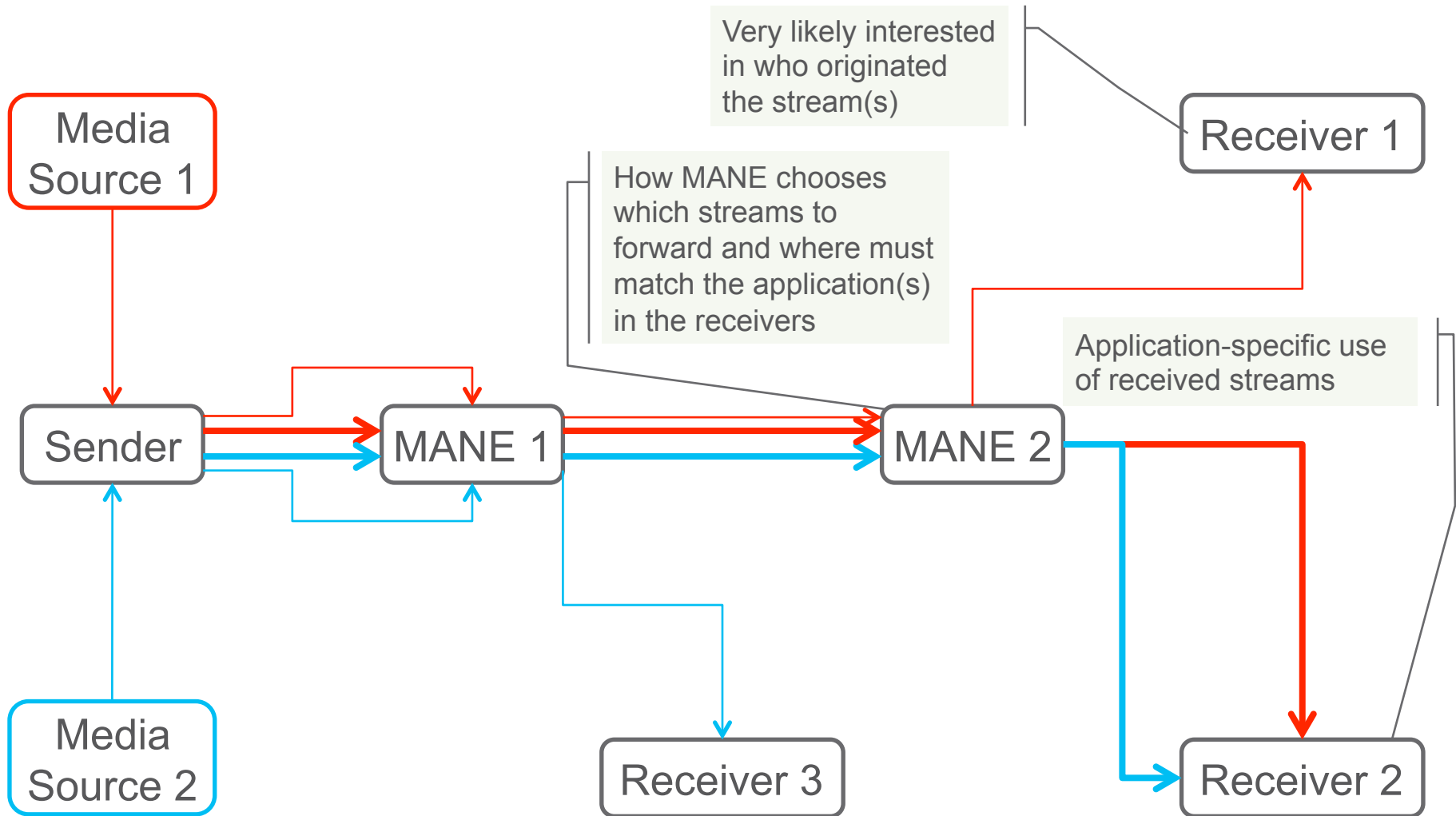
Simulcast Design Targets

- › Enable Media Aware Network Elements (MANEs) to avoid media transcoding to the furthest extent possible
- › Enable diversity in media capability across receivers
 - Endpoint capability
 - Transport capability
- › Limit amount of needed signaling when a Participant enters or leaves a Communication Session

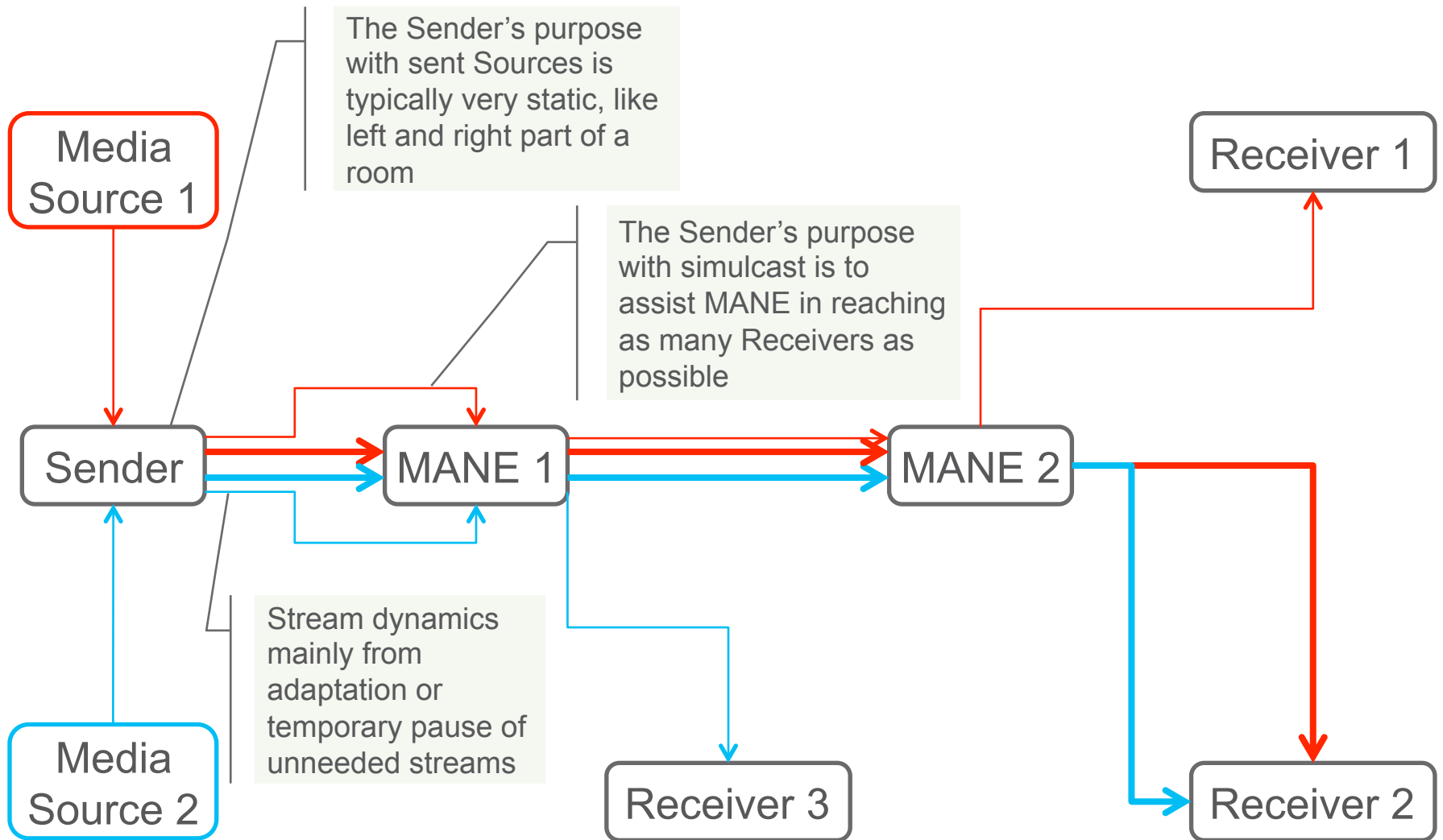
Sample Topology



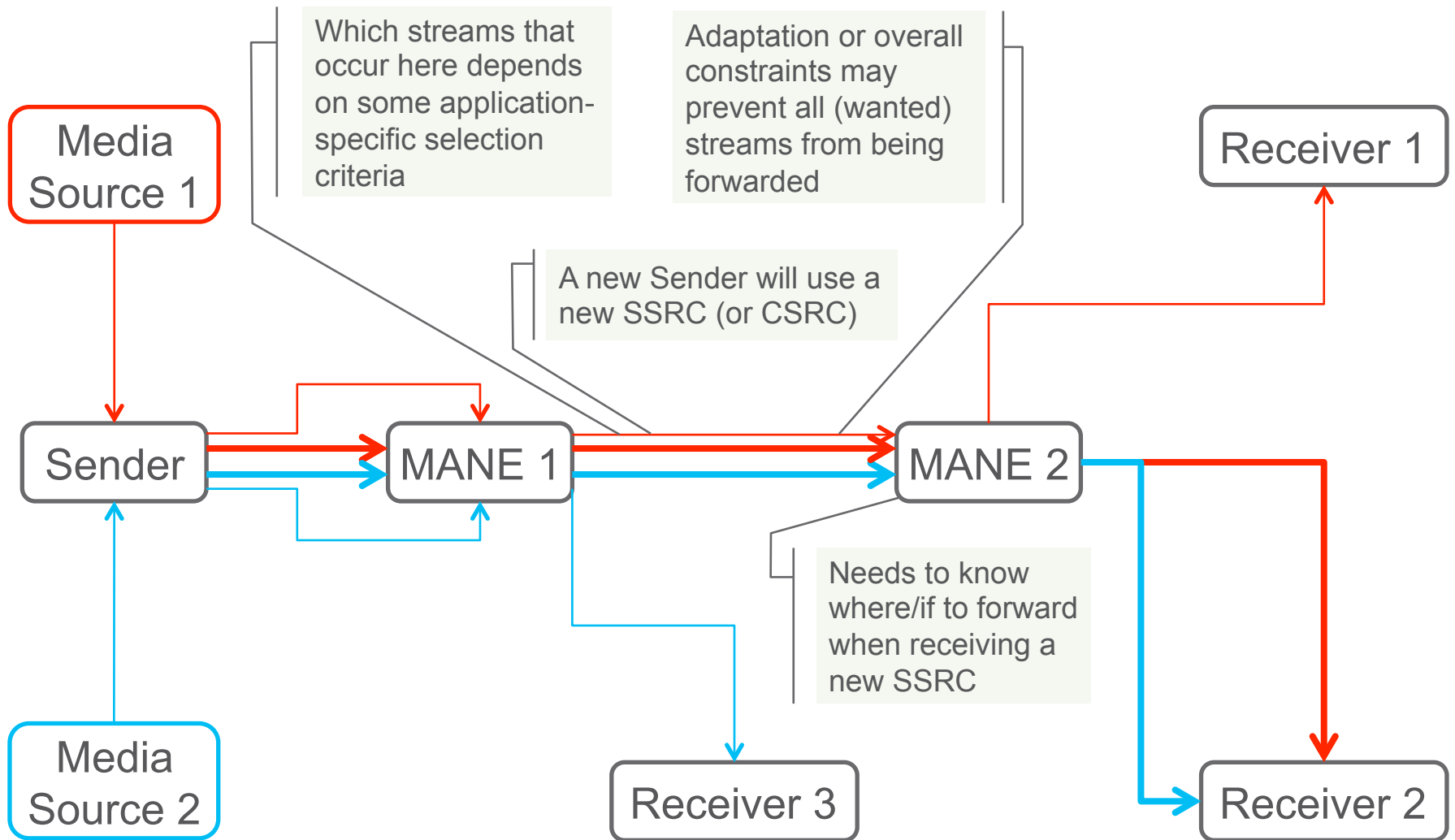
Receiver Interests



Sender Interests



MANE Interests



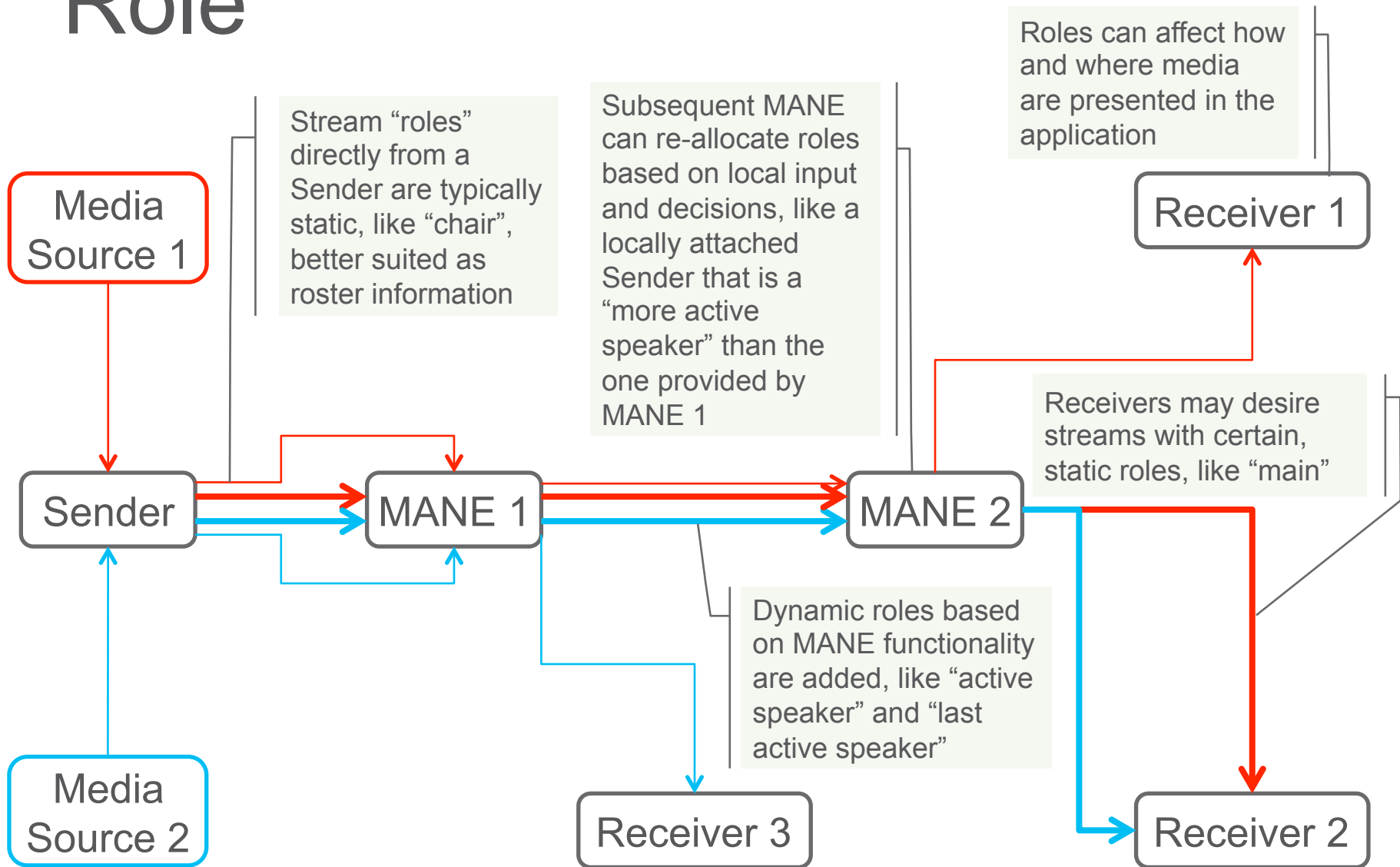
MANE Actions

- › Application-dependent!
- › A list-based per-SSRC forwarding approach is too simplistic:
 - Received <SSRC>: Forward to <list of receivers>
 - Needs to know all SSRC in advance to be able to forward
 - Very frequent list updates and thus heavy signaling needed
 - Does not scale well!
- › Choosing what to forward is really a multi-level decision

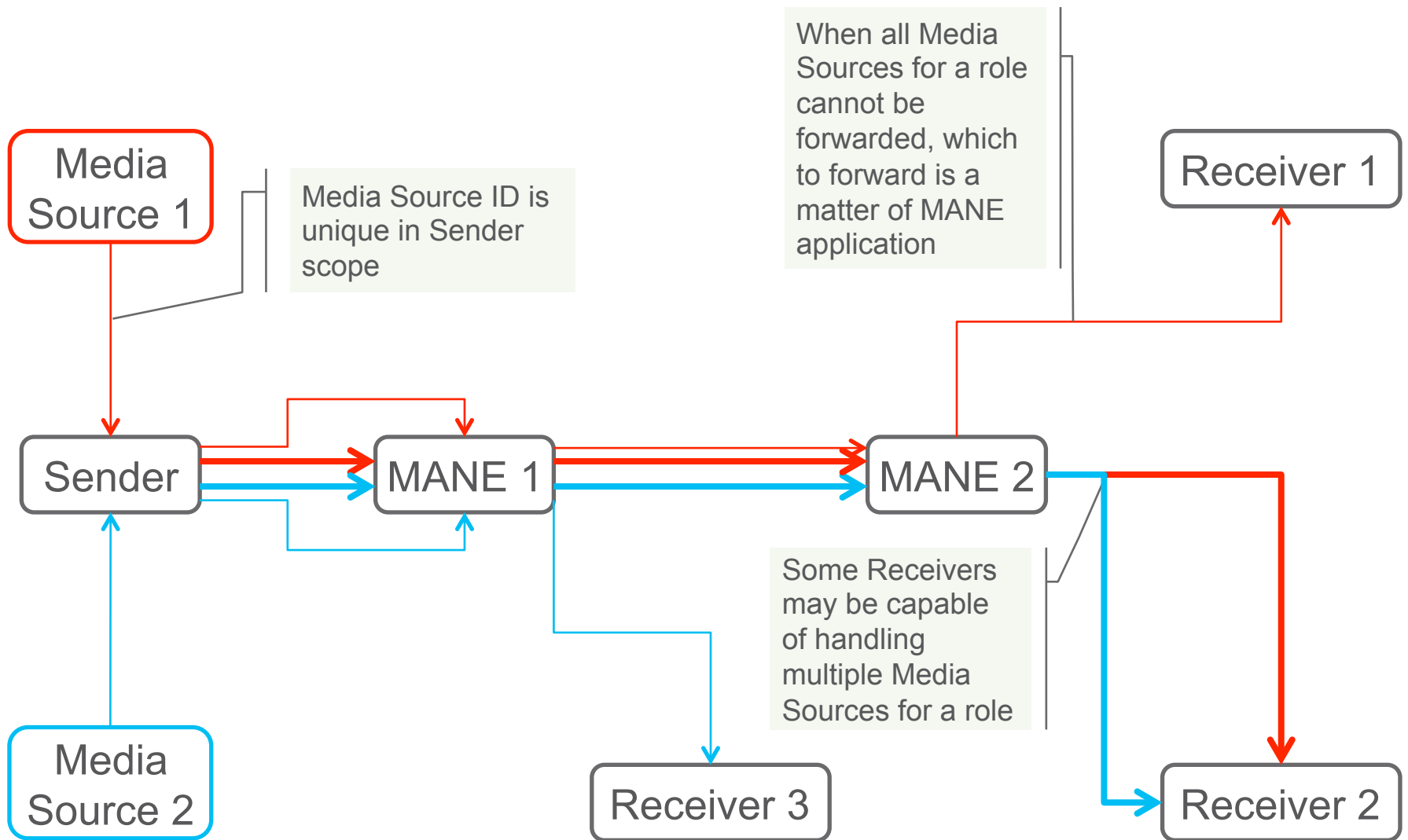
MANE Forwarding Decisions

- › Choosing what to forward is a multi-level decision
- › Which “role” or Participant?
 - “active speaker”, “slides”, “chair”, “John Doe”, “London”, ...
- › Which Media Source(s), for the chosen “role” / Participant?
 - A “role” / Participant can have multiple Media Sources
- › Which versions/qualities for each of those Media Sources?
 - **SIMULCAST** (or scalable coding) when multiple versions are available
 - Use the quality that best matches receiver and transport capabilities

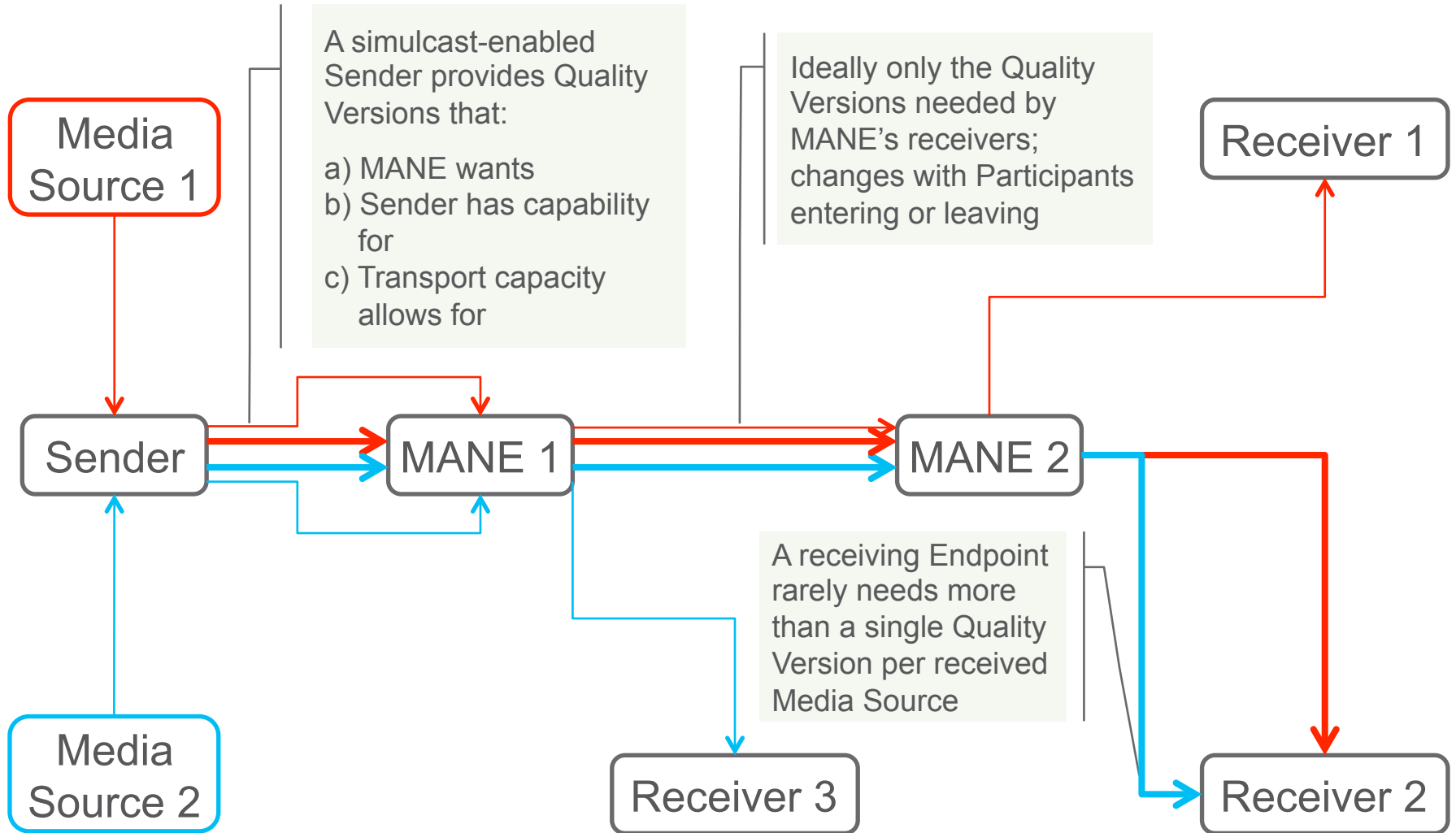
“Role”



Media Source



Quality Version



Matching Quality Versions

› Basic level

- Receiver has capability matching a RTP PT provided by MANE
- If MANE has several matching PT, assume Receiver wants “best”
- “Best” is often not straightforward, but depends on preferences

› Often desirable to Simulcast quality versions differing only in aspects that would “fit” within the same PT definition

- Want to avoid unnecessarily using up the limited PT number space!
- Some aspects are not even possible to define per PT

› A sub-Payload Type concept seems desirable!

Needed RTP Level Features

It is all about identification!

Feature	Possible Solutions	Scope
“Role”	Possibly appld	Application-dependent
Participant	Non-RTP signaling (e.g. SDP or roster), based on: <ul style="list-style-type: none"> • Originating Media Source SSRC • Originating Media Source RTCP SDES (CNAME, NAME) 	End-to-end
Media Source	<ul style="list-style-type: none"> • SRCNAME • CSRC • Possibly appld, amended • Possibly msid, amended 	End-to-end
Quality Version	<ul style="list-style-type: none"> • RTP Payload Type as base • RTP Payload Type sub-division: <ul style="list-style-type: none"> • SRCNAME.config-id • Possibly appld 	Per hop

appld:	draft-even-mmusic-application-token
SRCNAME:	draft-westerlund-avtext-rtcp-sdes-srcname
config-id:	draft-westerlund-avtcore-rtp-simulcast
msid:	draft-ietf-mmusic-msid

Discussion

- › What is an appropriate RTP level Media Source identification in a Simulcast context?
 - CSRC?
 - SRCNAME?
 - appld, amended with semantics and end-to-end scope?
 - msid, amended with RTP level information and end-to-end scope?

- › Do we need a concept sub-dividing Payload Types?
 - Sub-dividing SRCNAME, like SRCNAME.config-id?
 - Separate concept, like appld?