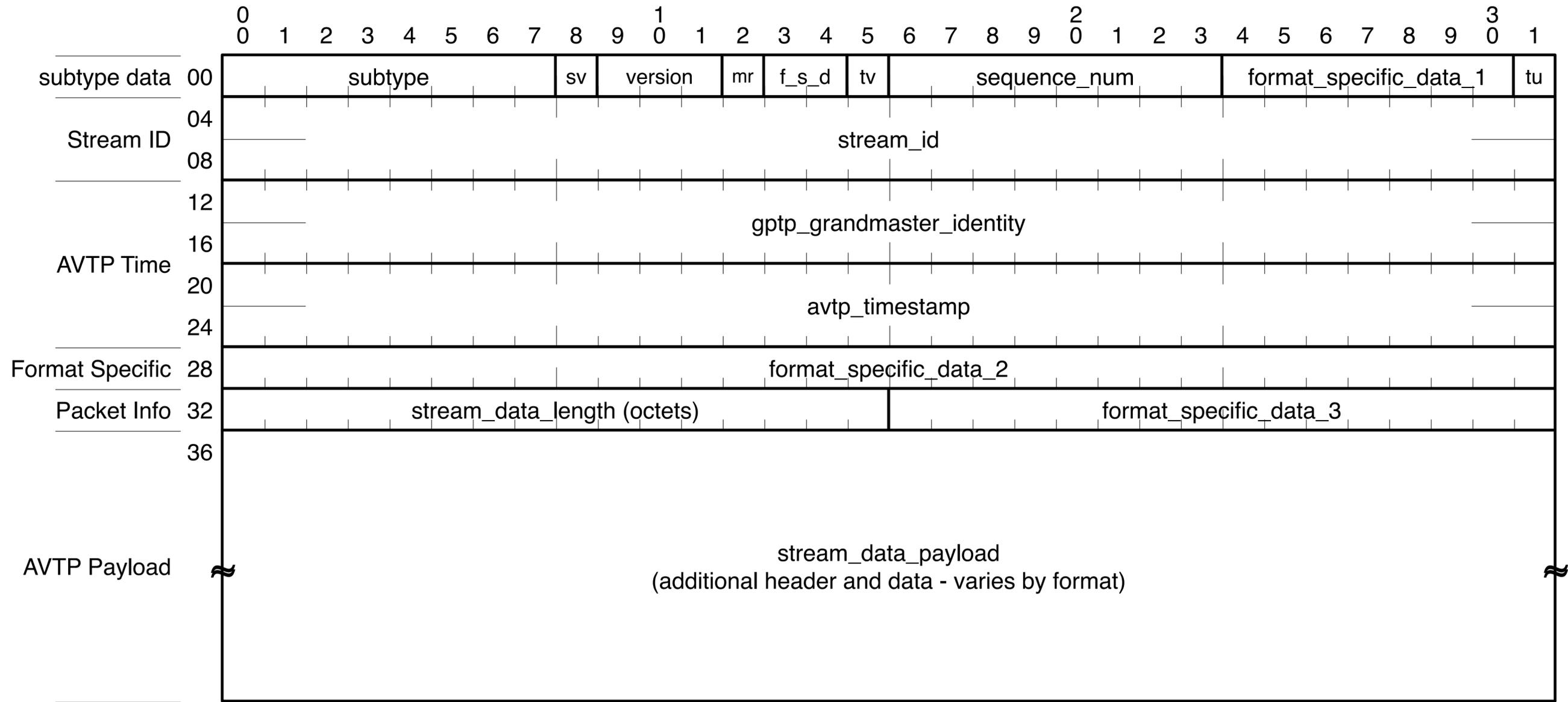# New Stream Header

Ashley Butterworth
Apple Inc

The Problem

- We make an assumption that after a gPTP BMCA execution that 2 devices that were previously streaming to each other end up with the same gPTP GM

- We make an assumption that while BMCA is executing that setting the tu field in the talker is sufficient to signal the listener to ignore the timestamps but:

  - there is a potential for a small window where BMCA hasn't reached the listener yet to trigger a change in the GM but the talker has already completed its changeover and is no longer setting tu.

  - packets may be buffered 10s-100s of milliseconds in advance and won't have the tu flag set even though GM is changing (or will set it after the GM changeover has finished)

- In some error scenarios there can be some multiple of 2^{32} nanoseconds of difference between the gPTP clock of the talker and the listener, this can get masked out as weird errors when converted to the avtp_timestamp

Solution

- Add gPTP GM identity to the header

  - Does this also need to include a domain number now that 802.1AS will support multiple domains?

  - Are there other important parameters?

- Expand the avtp_timestamp to a full 64-bits of nanoseconds

New Stream Header

		subtype	sv	version	mr	f_s_d	tv	sequence_num	format_specific_data_1	tu

Bit positions: 0 0 1 2 3 4 5 6 7 8 9 1 0 1 2 3 4 5 6 7 8 9 2 0 1 2 3 4 5 6 7 8 9 3 0 1

Section	Offset	Field
subtype data	00	subtype / sv / version / mr / f_s_d / tv / sequence_num / format_specific_data_1 / tu
Stream ID	04, 08	stream_id
AVTP Time	12, 16	gptp_grandmaster_identity
AVTP Time	20, 24	avtp_timestamp
Format Specific	28	format_specific_data_2
Packet Info	32	stream_data_length (octets) / format_specific_data_3
AVTP Payload	36	stream_data_payload (additional header and data - varies by format)

Questions and comments