Splicing for MPEG2-TS Problem Statement in RTP Sessions

draft-xia-avt-splicing-for-mpeg2ts-ps-01

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Background

- **Splicing of MPEG2-TS**
  - AD Server and Splicer negotiate how to insert AD content into MPEG2-TS multiplexed stream prior to outputting it
  - Splicing increases revenues for operators
- **This document analyses the problem when performing MPEG2-TS splicing over RTP.**

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Problem

- The amount of Insertion packets is variable during certain Avail time due to different entropy coding.
- If splicing between Insertion channel and Primary channel is inappropriately operated by Splicer
  - Overlap may render RTP receiver to discard the useful packets due to the reduplicate sequence numbers
  - Gap may render RTP receiver to request unnecessary retransmission for inexistent packet missing

Overlap between Insertion Channel and Primary Channel

<table>
<thead>
<tr>
<th>SN 1</th>
<th>SN 2</th>
<th>SN ...</th>
<th>SN 51</th>
<th>SN ...</th>
<th>SN 60</th>
<th>SN 61</th>
<th>SN ...</th>
<th>SN 70</th>
</tr>
</thead>
</table>

Discard

Gap between Insertion Channel and Primary Channel

<table>
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<tr>
<th>SN 1</th>
<th>SN 2</th>
<th>SN ...</th>
<th>SN 51</th>
<th>SN ...</th>
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</tr>
</thead>
</table>

Retransmission

Avail Time

AD 1 : RTP more
- SN 1
- SN ...
- SN 19
- SN 20

Avail Time

AD 2 : RTP less
- SN 1
- SN ...
- SN 5

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Potential Solution

• Splicer is a specific RTP Translator
  • re-encode AD data packets into primary program
  • assigns new sequence numbers to the outgoing data packets

• Shortcoming
  • Additional overhead on Splicer to continuously decoding and re-encoding even if splicing never occurs again
  • Modify RTCP SR message to be consistent with RTP packets modification
Next Steps

• Does this problem exist?
• Is the value in documenting how specific RTP translator should work as splicer in this scenario?
• Worth looking for more efficient solution?