

RTCP XR Block for Video Loss Concealment Metrics

draft-huang-xrblock-rtcp-xr-video-
lc-01

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Overview

- This new XR block defines one new block type of video loss concealment.
- It augments those audio loss concealment metrics defined in [i.d-ietf-xrblock-rtcp-xr-loss-concealment].
- The information of applied video loss concealment could be an complement to accurate estimation of application QoE.

Video Loss Concealment Methods

- **Frame freeze**
 - The impaired video frame is not displayed, instead, the previously displayed frame is hence frozen for the duration of the loss event.
- **Inter-frame extrapolation**
 - If an area of the video frame is damaged by loss, the same area from the previous frame(s) can be used to estimate what the missing pixels would have been.
- **Interpolation**
 - A decoder may use the undamaged pixels in the image to estimate what the missing block of image should have.

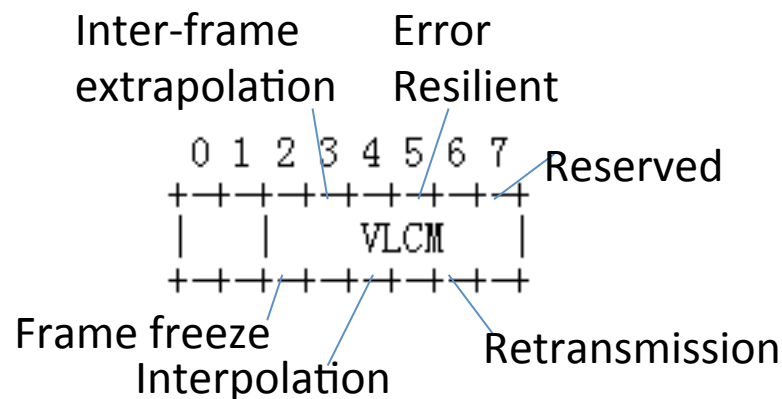
Video Loss Concealment Methods (2)

- Error Resilient

- The sender encodes their message in a redundant way so that receiver could correct the errors using the redundant information when the errors occurs.

- Retransmission

- Error concealment may involve feedback from the receiver to the sender.
- used on connections with low delay or in delay-insensitive applications.
- typically using RTCP messages (RFC 4585, RFC 4588, RFC 5105) as feedback.



Video Loss Concealment Report Block

```

0          1          2          3
0 1 2 3 4 5 6 7 0 1 2 3 4 5 6 7 0 1 2 3 4 5 6 7 0 1 2 3 4 5 6 7
+-----+-----+-----+-----+-----+-----+-----+-----+
|      BT=VLC      | I |      VLCM      |      block length=6      |
+-----+-----+-----+-----+-----+-----+-----+-----+
|                                     SSRC of Source                                     |
+-----+-----+-----+-----+-----+-----+-----+-----+
|                                     Loss Free Video Image Duration                                     |
+-----+-----+-----+-----+-----+-----+-----+-----+
|                                     Loss Concealed Image Duration                                     |
+-----+-----+-----+-----+-----+-----+-----+-----+
|      DMBF      |      CMBF      |      Reserved      |
+-----+-----+-----+-----+-----+-----+-----+-----+

```

- Loss Free Video Image Duration
 - Total time length, expressed in units of millisecond, of no loss video pictures without applying loss concealment methods.
- Loss Concealed Image Duration
 - Total time length, expressed in units of millisecond, of concealed damaged video pictures applied loss concealment methods corresponding to VLCM.
- DMBF
 - Average Damaged Macro Block Fraction
 - Mean fraction of macroblocks damaged in a damaged video frame over the measurement
- CMBF
 - Average Concealed Macro Block Fraction
 - Mean fraction of concealed macroblocks comparing to in a damaged video frame over the measurement period.

Next Step

- Comments?