Removal of cabac_zero_word for error detection/resilience
(JCTVC-E329/m19857)

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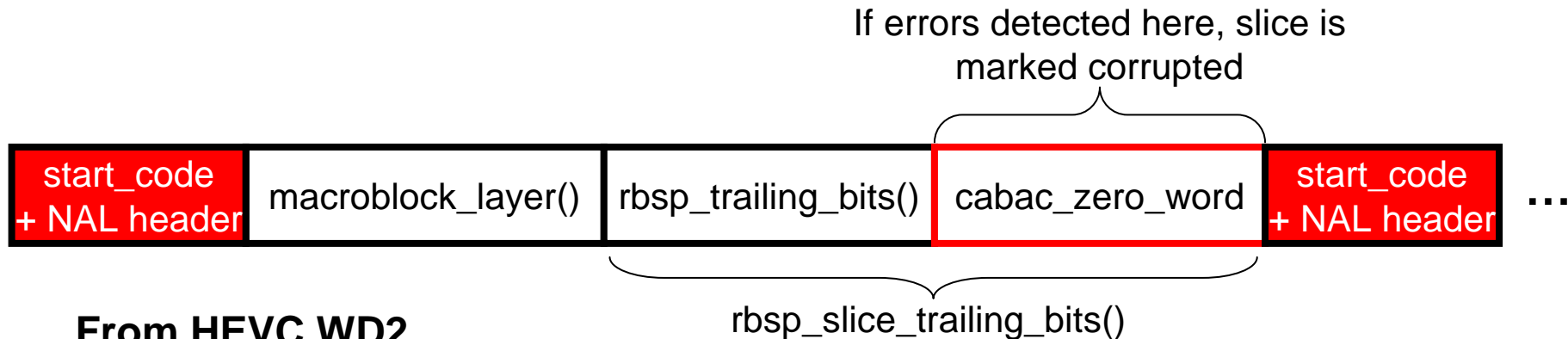
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cabac_zero_word

- Inserted after rbsp_trailing_bits() to achieve desired bins to bits ratio

- For error detection, want to compare the number decoded bits for the slice with the current NAL unit size
  - cabac_zero_word changes the number bits per NAL unit; Before doing a comparison, must parse through the bytes after end_of_slice_flag=1 to ensure that they match the cabac_zero_word pattern and the above method of error detection cannot be directly used.
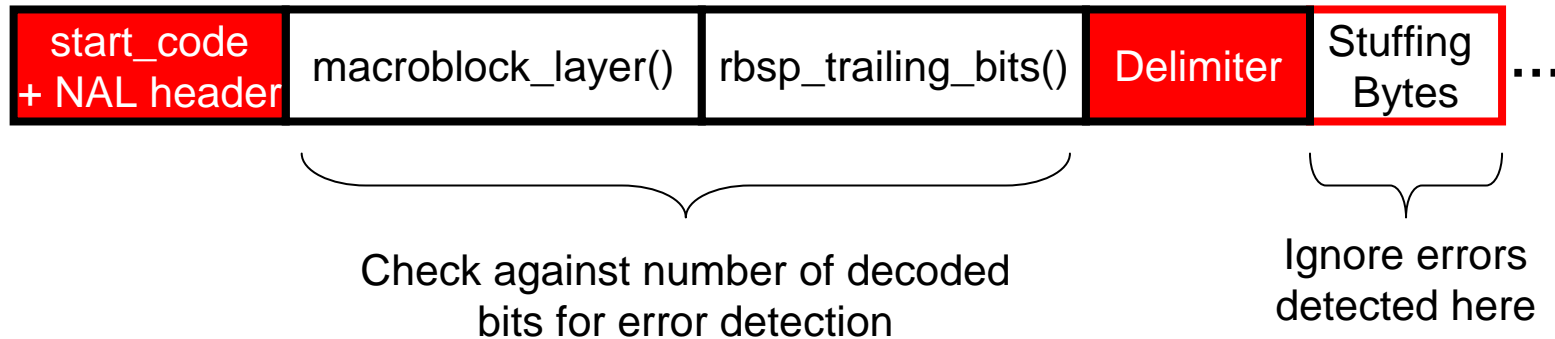
If errors detected here, slice is
marked corrupted

| start_code
+ NAL header | macroblock_layer() | rbsp_trailing_bits() | cabac_zero_word | start_code
+ NAL header | ... |

rbsp_slice_trailing_bits()

From HEVC WD2

```
rbsp_slice_trailing_bits( ) {
    rbsp_trailing_bits( )
    if( entropy_coding_mode_flag )
        while( more_rbsp_trailing_data( ) )
            cabac_zero_word /* equal to 0x0000 */
}
```

Recommend remove cabac_zero_word from remove from slice layer
(i.e. rbsp_slice_trailing_bits)

Alternative Byte Stuffing Methods

- Insert delimiter between cabac_zero_word and slice layer

start_code + NAL header	macroblock_layer()	rbsp_trailing_bits()	Delimiter	Stuffing Bytes	...

Check against number of decoded bits for error detection

Ignore errors detected here

- Place in separate NALU

- Use filler_RBSP

- Can this be addressed at a higher layer (not within the video codec layer)?

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Conclusion

- Propose to remove cabac_zero_word from slice layer (i.e. rbsp_slice_trailing_bits) to
  - enable a simple method of error detection (i.e. improved error detection)
  - prevent false alarms (i.e. improved error resilience)

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