

Generic RTP Payload Format for Forward Error Correction in Video Applications

draft-bsong-avt-rtp-gfec-00.txt

Hao Qin

hqin@mail.xidian.edu.cn

Summary

- Aim:
 - To reduce the impact of packet loss to a video receiver.
- Solution:
 - Use FEC technique to recover the lost information from the correctly received packets.
 - Bundle maximum number of output data blocks from an FEC encoder into each RTP packet to maximize the bandwidth utilization and minimize the latency.

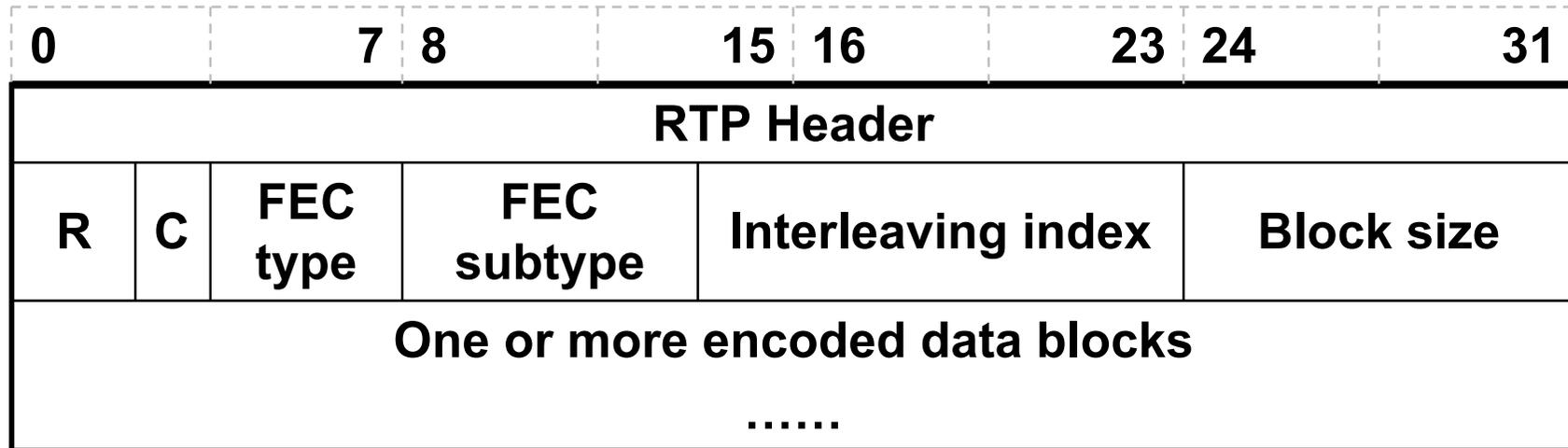
Unequal FEC protection

- Different parts in the video stream may have different importance to the receiver.
 - reference frames are critical to a decoder to reconstruct following pictures.
 - prediction frames are used to reconstruct just one picture based on the previous reference frame.
 - Losses of reference frames may cause far more serious disasters to the video decoder because the video decoder may be forced into a very long time of interruption.
- Data with different importance may be unequally protected with different FEC algorithms.

Interleaving

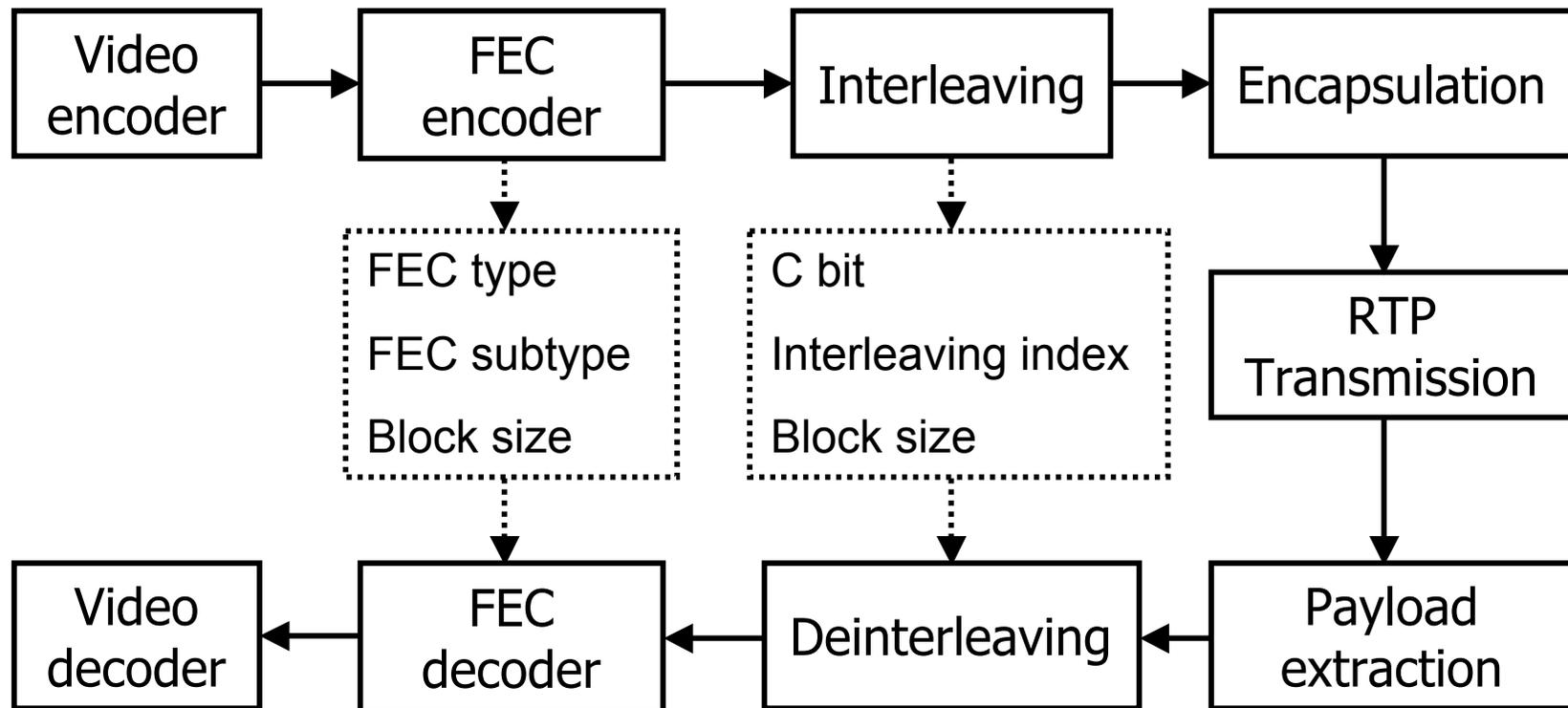
- Many consecutive data blocks from an FEC encoder may be encapsulated into a single RTP packet, so that loss of an RTP packet means loss of many data blocks. This brings difficulty to an FEC decoder for the insufficient information to reconstruct the source data.
- Interleaving should be introduced to solve this problem.

Generic payload format for FEC



R	3bits	reserved
C	1bit	interleaving indication
FEC type	4bits	mapped to a particular FEC algorithm
FEC subtype	6bits	mapped to the FEC algorithm parameters
Interleaving index	10bits	zero-based index within an interleaving group
Block size	8bits	number of octets in a data block

The process flow of the video stream



Thanks/Comments