



BACKGROUND

In wireless networks, video packets are often affected by bit errors during their transport. Typically, when a packet is corrupted by such errors, it is discarded. Forward error correction (FEC) as used in the scope of SMPTE 2022-1/5, Pro-MPEG, and RFC 5109, adds redundancy to enable the reconstruction of some of these discarded packets. However, when too many packets are damaged, FEC is unable to regain the lost information.

TECHNOLOGY

The technology exploits the information contained in the damaged packets to repair them. Since FEC discards these damaged packets, the proposed method has more information to work with and therefore can achieve better performance..

OPERATING CONDITIONS

The technology works under the following assumptions:

- Video IP packets are transmitted using FEC as described in SMPTE 2022-1/5, Pro-MPEG, or RFC 5109.
- The video packets are transmitted using the UDP protocol and contain a checksum (the UDP checksum) permitting to identify corrupted vs non corrupted packets.
- The video packets are not extensively damaged (e.g. the bit error rate is less than 10^{-3}).
- The corrupted video packets are not discarded (their content is reused in the proposed correction method)..

COMPETITIVE ADVANTAGES

The method provides the following benefits:

- Significantly lower packet loss rate compared to FECbased and non FEC-based methods (see an example in Figure 1).
- Fully compatible with existing standards.
- Low computational complexity.

APPLICATIONS

- Transmission of video information over wireless networks using SMPTE 2022-1/5, Pro-MPEG, or RFC 5109 (Long haul contribution and backhaul, facility infrastructure, program distribution, content exchange).

TECHNOLOGY DEVELOPMENTAL STAGE

Working prototype

INTELLECTUAL PROPERTY STATUS

Patent pending with priority date of September 2016.

BUSINESS OPPORTUNITY

The Technology is available for licensing.

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