

RTCP XR Video Metrics

draft-ietf-avt-rtcpxr-video-00.txt

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Issues and concerns

- Ensuring metrics are defined and are in line with industry/ other standards activities
- Focus mostly on RTP based communications, MPEG-TS work driven largely in other groups (e.g. MPEG, DVB)
 - E.g. existing standards such as TR 101290 focus on MPEG-TS
- Accomodating FEC related metrics to aid with optimal configuration
- QoE metric algorithms
- Payload for mobile applications needs to be smaller
- Accomodating R-UDP, TCP and other reliable transport protocols

Alignment

- Applicable to IPTV, IP Videoconferencing, IP video streaming
- IPTV - work has been coordinated/ socialized with ATIS IIF QOSM (*ATIS IPTV Interoperability Forum QoS Metrics*), DSL Forum, ITU-T IPTV Focus Group and other relevant organizations (including key participants in VQEG and ITU-T SG9)
 - Currently, the most mature work on metrics is coming from IIF QOSM, hence trying to keep alignment with that work
- Some basic MPEG transport metrics but not attempting to replace TR 101290, which is quite well established.
- Interest in RTCP XR Video Metrics as a reporting / endpoint data exchange protocol from multiple standards groups
- Interest in integrating reduced reference and combined sending/receiving end performance analysis capabilities.

Accomodating FEC

- Metrics related to FEC (and other error recovery)
 - Pre/Post FEC loss rates – reports effectiveness of FEC if used
 - Burst density/ length - provides information related to the FEC block length and rate (note bursts are “sparse”)
 - Mean and max loss period – provides information related to periods of consecutive loss (see IPPM for definition of loss period)

QoE Metrics

- Development of NR/ RR algorithms active in ATIS, ITU SG9/12, testing work underway in VQEG
- Most algorithms submitted via ITU do have IPR
- Algorithm under development in ATIS but also under discussion in ITU & VQEG based on Estimated PSNR
 - Based algorithm IPR free
 - Two approaches to calculate
 1. Use info on packet loss within I/B/P frames and knowledge of GoP structure and key coding parameters to estimate PSNR
 2. Decoder can use knowledge of macroblocks that needed concealment to estimate PSNR (commonly used in decoders)
- Currently going through validation process with ATIS and will be also tested by VQEG

QoE Metrics

- VSxQ metrics have largely been replaced by MOS, still need to replace VSCQ
- Added Absolute and Relative MOS to accommodate issues with streams sent to dissimilar display devices (e.g. cellphone vs HDTV)

Payload for mobile applications

- Added more compact payload for mobile applications
- Fixed size, simplified transport metrics

Reliable transport protocols

- Within the industry – wide range of transport protocols potentially used
 - UDP, TCP, R-UDP, Multicast with Unicast retransmission, FEC.....
- Important to have before/after EC metrics and to provide loss stats that can help to understand effectiveness of loss mitigation algorithms
- Draft has metrics related to playout gaps to accommodate protocols that may lead to buffer starvation rather than picture degradation

Summary

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