

Consideration for Selecting RTCP XR Metrics for RTCWEB Statistics API

draft-huang-xrblock-rtcweb-rtcp-xr-metrics-01

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Motivation

- WebRTC needs Statistics.
 - draft-ietf-rtcweb-use-cases-and-requirements specifies requirement for statistics.
 - WebRTC 1.0 has defined some statistics Javascript APIs.
 - draft-alvestrand-rtcweb-stats-registry introduces a registration procedure for choosing metrics reported by JS APIs, and basic metrics from standard RTCP SR/RR.
- Basic statistics from RTCP SR/RR may not be sufficient.
 - Some metrics are not enough, e.g., packet discarded and duplicated are not considered in RTCP SR/RR.
 - Precise quality monitoring and troubleshooting need other metrics besides RTCP SR/RR, e.g., application layer statistics.

Considerations for Metrics Selecting

- Metrics could only be collected from the receiver side browser.
- What if the sender side or other monitoring side wants to know the information?
 - Implementing RTCP XR by SDP negotiation
 - Metrics could be sent to the remote side by JS APIs or by other methods provided by applications.
- Metrics could be queried at arbitrary intervals.

Candidate Metrics

- Loss, discard and duplicated packet count metrics
 - Pro: they may be useful for congestion control.
 - No con for now.
- Burst/gap pattern metrics for loss and discard
 - Pros:
 - ✓ Per call statistics could not capture transitory nature of the impairments, e.g., bursty packet loss.
 - ✓ helpful for quality evaluation and locating impairments
 - No con for now.
- Frame impairment summary metrics
 - Pros: providing information other than those of transport layer, which may accurately reflect the quality observed by applications.
 - No con for now.

Candidate Metrics (Cont.)

- Jitter and jitter buffer metrics
 - Pros
 - ✓ Jitter metric of RTCP SR/RR may not be able to reflect the variation of the whole interval when the interval is big enough.
 - ✓ Jitter metrics defined in RFC3611 and RFC6798 could provide more information
 - ✓ Jitter buffer metrics may be useful in QoE evaluation.
 - Cons: Is it useful to provide such information to application?
- Number of bytes discarded
 - Pro: supplementing the sent and received octets and provides an accurate method for calculating goodput.
 - No con for now.

Candidate Metrics (Cont.)

- Number of retransmission packets
 - Pro: help to provide a more accurate quality evaluation
 - Con: retransmission is optional in RTCWEB
- Run length encoded metrics for loss, discard and post-repair
 - uses a bit vector to encode the status about the packet
 - Pros:
 - ✓ providing additional information which are useful.
 - ✓ Post-repair RLE metric indicates how success of the error-resilience mechanism is.
 - Con: Repair mechanisms are optional in RTCWEB.

Next Step

- Comments and suggestions ?
- Submit it to W3C and RTCWEB when consensus made.