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Gateway control protocol: RTCP XR Block Reporting Package

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Recommendation ITU-T H.248.48 (ex H.248.QHR)

Gateway control protocol: RTCP XR Block Reporting Package

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Gateway Control Protocol: RTCP XR Block Reporting Package

Summary

This Recommendation defines packages which allow MGs to report media transmission quality and call quality to MGCs, using metrics defined in a series of RTCP extended report (XR) blocks [IETF RFC 3611].

1 Scope

This Recommendation defines packages which allow MGs to report media transmission quality and call quality to MGCs using metrics defined in a series of RTCP extended report (XR) blocks standardised by IETF [IETF RFC 3611]. The Recommendation is applicable to MGs which have at least one interface which uses RTP [IETF RFC 3550].

The RTCP XR metrics family may be applied to unicast bidirectional RTP sessions including zero or more RTP translators as well as two RTP end systems.

NOTE - These models (including the RTP mixer) are the high-level RTP system models according to [IETF RFC 3550]. [b-IETF RFC 5117] is an extension and provides RTP topology models at a more detailed level. All these models are applicable in principle for H.248.48 because an H.248 IP Stream or Termination point may be a node of such an RTP topology. The particular RTP topology may in principle affect the processing of the report.

For instance, the RTP translator model is divided into an "RTP transport translator" and an "RTP media translator" model. The first one is media-agnostic, the second one is media-aware. The individual modes have different impact on RTCP packet types and/or report information.

For such RTP sessions, an MG may receive the RTCP XR metrics family reports from one or more of the other RTP systems involved in the RTP session, up to a possible maximum of all the RTP systems other than itself.

The package in ITU-T H.248.48 uses a sub-list of Octet String to permit transfer of a variable number of the RTCP XR metrics family reports in an H.248 Statistics descriptor. Each Octet String contains all the data from a single RTCP XR packet, which contains measurements made at one RTP system of one or more streams originating at another RTP system (or systems). The RTCP XR packet contains the SSRC [IETF RFC 3550] of the RTP system which made the measurement, and an SSRC for each RTP system which originated a measured stream. This enables the MGC (or other entity observing the report) to determine the section of the RTP session to which the report applies.

Through the use of H.248 Properties, this package allows the MGC to control the following aspects of MG behaviour:

- the reporting of a specified set of Report Blocks, measured locally at the MG, towards the MGC as H.248 Statistics.
- the collection of RTCP XR packets incoming to the MG for reporting towards the MGC as H.248 Statistics. No more than one RTCP XR packet is to be stored for each unique tuple of Originating Point and Measurement Point. An existing stored packet is overwritten by the next packet to arrive for the same tuple.
- the forwarding of RTCP XR packets by RTP translators, including whether RTP translators forward packets which were generated by other RTP translators.

The RTCP XR family is intended to be extensible and it is the intention that this package will not require modification if RTCP XR is extended. Hence Property values which control the RTCP XR blocks which are to be reported by the MG are defined by reference to SDP syntactical elements

standardised additively in [IETF RFC 3611] and in RTCP XR. As new RTCP XR blocks are defined, allowable Property values are implicitly extended with the SDP defined for the new block.

In addition, the MGC may control the sending of a specified set of RTCP XR Report Blocks (alongside RTP media) by an MG which is an RTP System (End System, Mixer or Translator), by addition to the Remote Descriptor of the same standardised SDP attribute, in "a=rtcp-xr:" lines.

The new Statistic *xrbr/xrpkt* may be sent by the MG to the MGC in an H.248 response to an Audit or Subtract command, in a similar manner to other H.248 Statistics. It may also be sent by the MG in parameter *scr/val* in an Observed Event of the Statistic Conditional Reporting Package [ITU-T H.248.47]. No immediate H.248 action is initiated by the arrival of RTCP XR packets at the MG, but (depending on the value of *xrbr/scpo*) the incoming packet may be stored for future reporting. If a packet is stored, it overwrites any previously-stored packet having the same tuple of Originating Point and Measurement Point.

The MGC may reset the values of locally-measured metrics within reports in the Statistic Descriptor. It is not possible to reset the values of metrics received in RTCP metrics family reports from remote systems.

Detailed descriptions of RTCP XR metrics are not repeated here; refer to [IETF RFC 3611].

2 References

The following ITU-T Recommendations and other references contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision; users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published. The reference to a document within this Recommendation does not give it, as a stand-alone document, the status of a Recommendation

[ITU-T H.248.1]	Recommendation ITU-T H.248.1 Amd.2 (2009), <i>Gateway control protocol: Version 3: Corrections and clarifications</i>
[IETF RFC 3550]	IETF RFC 3550 (2003), <i>RTP: A Transport Protocol for Real-Time Applications</i>
[IETF RFC 3611]	IETF RFC 3611 (2003), <i>RTP Control Protocol Extended Reports (RTCP XR)</i>

3 Definitions

3.1 Terms defined elsewhere

This Recommendation uses the following terms defined elsewhere:

3.1.1 CNAME [IETF RFC 3550]: Canonical Name, a persistent transport-level identifier for an RTP source.

3.1.2 Measurement Point, MP [b-ITU-T M.2301]: The physical or logical point at which measurements can be made and to which the data obtained is related. In the context of this Recommendation, the RTP system which receives one or more streams of RTP packets, makes measurements on the streams, and may generate RTCP XR packets containing the resulting metrics for transmission towards other RTP systems. The MG may be a Measurement Point. The SSRC of the Measurement Point is present in the RTCP XR header of an RTCP XR packet, see clause 2/[IETF RFC 3611].