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SERIES H: AUDIOVISUAL AND MULTIMEDIA SYSTEMS

Infrastructure of audiovisual services – Communication procedures

Gateway control protocol: Packages for application level H.248 statistics

Recommendation ITU-T H.248.58

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Recommendation ITU-T H.248.58

Gateway control protocol: Packages for application level H.248 statistics

Summary

Recommendation ITU-T H.248.58 defines an H.248 package for application data level statistics for applications, which use real-time transport protocol as an application-level framing protocol. Both statistics are related to traffic volume. Such metrics may be useful for usage metering.

Source

Recommendation ITU-T H.248.58 was approved on 13 June 2008 by ITU-T Study Group 16 (2005-2008) under Recommendation ITU-T A.8 procedure.

FOREWORD

The International Telecommunication Union (ITU) is the United Nations specialized agency in the field of telecommunications, information and communication technologies (ICTs). The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of ITU. ITU-T is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

The World Telecommunication Standardization Assembly (WTSA), which meets every four years, establishes the topics for study by the ITU-T study groups which, in turn, produce Recommendations on these topics.

The approval of ITU-T Recommendations is covered by the procedure laid down in WTSA Resolution 1.

In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

NOTE

In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

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As of the date of approval of this Recommendation, ITU had not received notice of intellectual property, protected by patents, which may be required to implement this Recommendation. However, implementers are cautioned that this may not represent the latest information and are therefore strongly urged to consult the TSB patent database at http://www.itu.int/ITU-T/ipr/.

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1 Scope

1.1 Introduction to areas with usage of H.248 statistics

H.248 statistics are defined and used for different purposes. They may be categorized into the following main areas:

1) **Usage metering**: Relates typically to the traffic volume on the application level; see, e.g., clauses E.11 and E.12 of [ITU-T H.248.1] for basic support.

2) **Reporting of QoS related metrics**: See, e.g., [ITU-T H.248.30].

3) **Recording of successful, unsuccessful or specific policing actions**: See, e.g., [ITU-T H.248.43].

4) **Validation of network capacity allocations**: Relates typically to the traffic volume on the lowest layer of transport capacity reservation, e.g., could be layer 2, 3 or other; dependent on the specific local descriptor and/or remote descriptor information.)

1.2 Scope of H.248 statistics defined by this Recommendation

The scope of this Recommendation is related to H.248 statistics defined, in particular, for measurements on an application data level. Served user instances for such statistics may be in the area of usage metering.

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 (2005), *Gateway control protocol: Version 3; Amendment 1 (2008).*

[ITU-T H.248.30] Recommendation ITU-T H.248.30 (2007), *Gateway control protocol: RTCP extended performance metrics packages*.

[ITU-T H.248.43] Recommendation ITU-T H.248.43 (2008), *Gateway control protocol: Packages for gate management and gate control*.

[ITU-T H.248.57] Recommendation ITU-T H.248.57 (2008), *Gateway control protocol: RTP control protocol package*.

[IETF RFC 3550] IETF RFC 3550 (2003), *RTP: A Transport Protocol for Real-Time Applications*.
<http://www.ietf.org/rfc/rfc3550.txt>

3 Definitions

3.1 Terms defined elsewhere

None.

3.2 Terms defined in this Recommendation

None.

4 Abbreviations and acronyms

This Recommendation uses the following abbreviations and acronyms:

IP Internet Protocol

MG Media Gateway

MGC Media Gateway Controller

RR Receiver Report

RTCP Real-time Transport Control Protocol

RTP Real-time Transport Protocol

SR Sender Report

SSRC Synchronization Source

5 Conventions

None.

6 Overview

Clause 7 defines an H.248 package for application data level statistics for applications, which use RTP as the application level framing protocol.

6.1 Relation of the *rtpad* package to *nt* and *rtp* packages

The calculation of statistics for the metrics "octets sent" and "octets received" is introduced by clause E.11.5.1.5 of [ITU-T H.248.1]. Figure 1 illustrates the concept of an IP stack (which is the case for RTP) and the various possibilities of layer-dependency for these two metrics.

Figure 2 points out the difference between the semantics of the *rtpad* package (case 'e') versus *nt* and *rtp* package (case 'c').

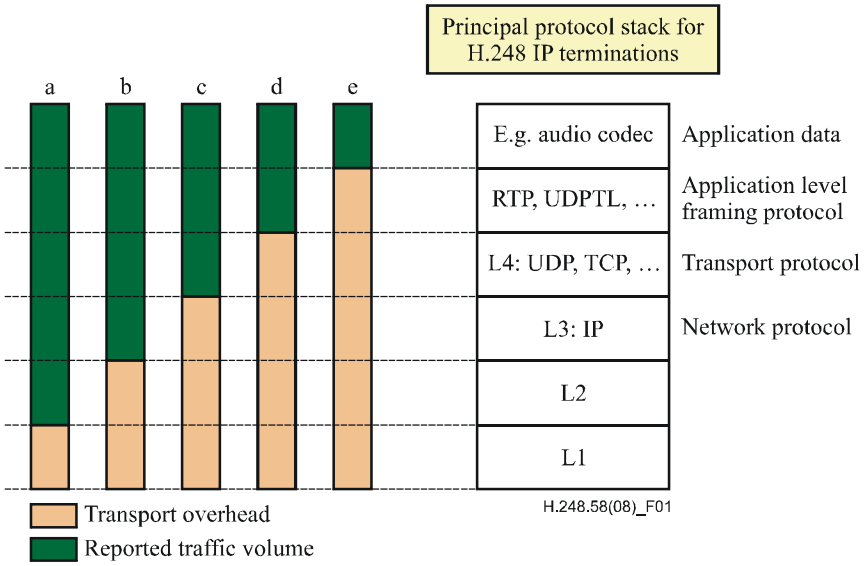

Figure 1 – Layer-dependent metrics for "octets sent" and "octets received" in case of an IP stack

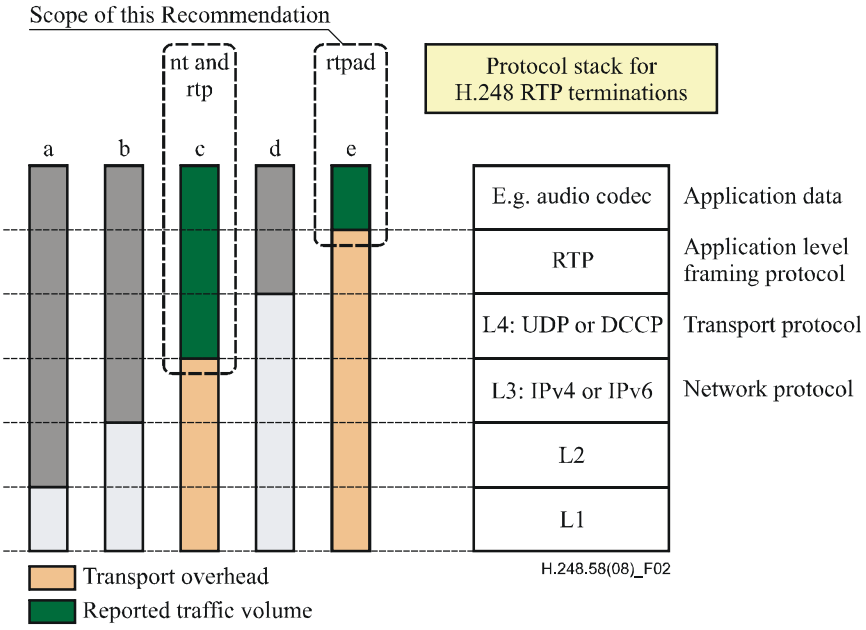

Figure 2 – Semantics of the *rtpad* package versus *nt* and *rtp* package

The *rtpad* package provides complementary statistics with regard to the *nt* and *rtp* packages. For instance, the statistics of *rtpad* could be used for *usage metering*, and the statistics of *nt* or *rtp* could be used for the measurement of IP transport capacity usage and, thus, the validation of requested *transport protocol layer bandwidth*.

7 RTP Application Data Package

Package name: RTP Application Data Package

Package ID: rtpad (0x00cb)

Description: This package is used to support explicit octet count statistics according to the real-time transport protocol (RTP) [IETF RFC 3550].

Version: 1

Extends: None.

7.1 Properties

None.

7.2 Events

None.

7.3 Signals

None.

7.4 Statistics

7.4.1 RTP Payload Octets Sent

Statistic name: RTP Payload Octets Sent

Statistic ID: payloados (0x0001)

Description: Provides the number of octets sent from the termination or stream since the statistic has been set. The octets represent the egress RTP payload according to [IETF RFC 3550] (see clause 6.4.1, SR: Sender Report RTCP Packet):

Sender's octet count:
The total number of payload octets (i.e., not including header or padding) transmitted in RTP data packets.

At the termination level, it is equal to the sum of the egress flows over all streams.

Type: Double

Possible values: any 64-bit integer 0 and up

Level: Either

7.4.2 RTP Payload Octets Received

Statistic name: RTP Payload Octets Received

Statistic ID: payloador (0x0002)

Type: Double

Description: Provides the number of octets received on the termination or stream since the statistic has been set. The octets represent the ingress RTP payload, i.e., the total number of payload octets (i.e., not including header or padding) received in RTP data packets by the receiver. This H.248 statistic is not related to Receiver Report RTCP Packet (RTCP RR).

At the termination level, it is equal to the sum of the ingress flows over all streams.

Possible values: any 64-bit integer 0 and up

Level: Either

7.5 Error codes

None.

7.6 Procedures

7.6.1 Relation of RTCP basic report metrics and H.248 statistics

The RTCP metrics for the octet count are dependent on the arrival events RTCP sender or receiver reports. The arrival of an SR or RR typically leads to the reset of the RTCP metrics. The correspondent H.248 statistics are independent of RTCP packet arrival and departure events.

7.6.2 SSRC identifier changes

The SSRC may change for an active RTP session. Such a change may lead to the reset of the RTCP counters (see [IETF RFC 3550]).

The correspondent H.248 statistics shall be independent of RTP SSRC changes.

7.6.3 RTCP traffic

The traffic volume of a possible RTCP flow (note that the definition of RTCP flow is in clause 3 of [ITU-T H.248.57]) is not measured; only "RTP data packets" will be counted. In the case of a lack of sent and received RTP traffic the values of the statistics will consequently be equal to zero (e.g., also for H.248 streams with an assigned RTCP flow only), independent of the RTCP-related traffic volume.

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