**3GPP TSG-S4 Meeting ad hoc post #132*****S4aR250107***

**Online, Internet, 25th June–9th July 2025**

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| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **26.506** | **CR** | **0010** | **rev** |  | **Current version:** | **19.0.0** |  |
|  | | | | | | | | |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps |  | ME | **X** | Radio Access Network |  | Core Network | **X** |

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| ***Title:*** |  | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | BBC, Nokia, Lenovo, InterDigital | | | | | | | | | |
| ***Source to TSG:*** | S4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5G\_RTP\_Ph2 | | | | |  | ***Date:*** | | | 2025-06-10 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***Release:*** | | | Rel-19 |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) … Rel-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | Stage-2 scope of application-specific PDU handling features does not yet motivate stage-3 normative additions to the RTC System specified in TS 26.113 or to the media session handling toolkit specified in TS 26.510. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Define how the following features make use of the Dynamic QoS tool for handling RTC-based media sessions:   1. PDU Sets (including N6-unmarked PDUs). 2. Dynamically changing traffic characteristics:    * Data burst size.    * Time to Next Burst    * Expedited data transfers. 3. Media streams multiplexed in a single application flow. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Stage-3 changes to the corresponding stage-3 technical specifications lack sufficient motivation in this release. | | | | | | | | |
| ***Q*** | |  | | | | | | | | |
| ***Clauses affected:*** | | 2, 3.3, 4.1.1, 4.2.10, 4.2.12, 4.3.2, 4.3.3, 4.3.4, 4.3.9, 4.7 (new) | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | | **Y** |  | Other core specifications | | | | TS 26.506 CR00XX | | |
| ***affected:*** | |  | **X** | Test specifications | | | |  | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | |  | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | | The **PDU Set handling** feature is already specified at stage-3 in Release 18 (i.e., in TS 26.113 and TS 26.510), but the stage-2 definition is missing from TS 26.506 in that release. A Release 18 Category F CR will be derived from this Release 19 CR containing the relevant subset.  There is also consensus among the sources of this contribution that:   * Handling of PDU Sets is applicable to uplink as well as downlink PDUs from Rel-18 onwards. * N6-unmarked PDUs are handled by the UPF in Rel-18, but with a system-configured default QoS rather than one configured by the AF.   Several open issues  - need to clarify the support of N6-unmarked PDU from SA2  - need to clarify the (lack of) support in WebRTC client/app  - need to clarify that QoS policy handling can also work in case no metadata signaling but that this is not the preferred case  -  avoid talking about RAN and 5GS details instead talk about 5GS when possible (some exceptions) but if 5GS changes we need to update the spec | | | | | | | | |
| ***-*** | |  | | | | | | | | |
| ***This CR's revision history:*** | | CR0010 [S4aR250107]: Submitted for SWG endorsement.  R1 – comments/edits and suggestions from Huawei | | | | | | | | |

CHANGE

# 2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non‑specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document in the same Release as the present document.

[1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[2] 3GPP TR 26.998: "Support of 5G glass-type Augmented Reality / Mixed Reality (AR/MR) devices".

[3] 3GPP TS 26.119: "Media Capabilities for Augmented Reality".

[4] 3GPP TS 26.113: "Enabler for Immersive Real-time Communication".

[5] 3GPP TR 26.930: "Study on the enhancement for Immersive Real-Time communication for WebRTC".

[6] 3GPP TS 26.501: "5G Media Streaming (5GMS); General description and architecture".

[7] 3GPP TS 23.558: "Architecture for enabling Edge Applications".

[8] 3GPP TS 38.321: "NR; Medium Access Control (MAC) protocol specification".

[9] 3GPP TS 36.321: "LTE; Medium Access Control (MAC) protocol specification".

[10] 3GPP TS 26.114: "IP Multimedia Subsystem (IMS); Multimedia telephony; Media handling and interaction".

[11] 3GPP TS 23.501: " System architecture for the 5G System (5GS)".

[12] 3GPP TS 23.548: "5G System Enhancements for Edge Computing; Stage 2".

[13] IETF RFC 8825: "Overview: Real-Time Protocols for Browser-Based Applications".

[14] 3GPP TS 23.503: "Policy and charging control framework for the 5G System (5GS); Stage 2".

[15] IETC RFC 8834: "Media Transport and Use of RTP in WebRTC".

Next change

## 3.3 Abbreviations

For the purposes of the present document, the abbreviations given in 3GPP TR 21.905 [1] and the following apply. An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in 3GPP TR 21.905 [1].

ADU Application Data Unit

AR Augmented Reality

DRx Discontinuous Reception

EAS Edge Application Server

ECS Edge Configuration Server

EEC Edge Enabler Client

EES Edge Enabler Server

IETF Internet Engineering Task Force

ICE Interactive Connectivity Establishment

IMS IP Multimedia Subsystem

MCU Multi-point Control Unit

MNO Mobile Network Operator

MR Mixed Reality

MSH Media Session Handler

MTSI Multimedia Telephony Service for IMS

NAT Network Address Translation

PDU Protocol Data Unit

PSI PDU Set Importance

QoS Quality of Service

RTC Real-Time media Communication

RTT Round-Trip Time

SDP Session Description Protocol

SFU Selective Forwarding Unit

STUN Session Traversal Utilities for NAT

TURN Traversal Using Relays around NAT

W3C World Wide Web Consortium

WebRTC Web Real-Time Communication

XR eXtended Reality

Next change

### 4.1.1 Definition of RTC architecture

Real-Time media Communication (RTC) over 5G system in the context of this specification is defined as the delivery of delay-sensitive media from one peer to another with support of 5G network. AR conversational service described in TR 26.998 [2] is a typical use cases for RTC, which enables end-users to directly communicate real-time media including AR/MR media content as specified in TS 26.119 [3]. As identified in clause 8.4 of TR 26.998, there may be different options to enable such AR conversational service, for example re-use of parts of MTSI as defined in TS 26.114 [10] such as the IMS data channel or 5G Media Streaming for managed services.

The overall RTC architecture is shown in figure 4.1.1-1 below.



NOTE: The functions indicated by the yellow filled boxes are in scope of the present document for RTC. The functions indicated by the grey boxes are defined in 5G System specifications. The functions indicated by the blue boxes are neither in scope of 5G RTC nor 5G System specifications.

Figure 4.1.1-1: Real-time media communication (RTC) in 5G System

The media data is exchanged between two or more RTC endpoints over a 5G System as defined in TS 23.501 [11]. The following features of the 5G System may be exploited to optimise the transmission of media data as part of RTC sessions with specific requirements for low latency and high throughput, such as those supporting interactive or eXtended Reality (XR) services:

1. *PDU Set based QoS handling*. An RTC AS may enable differentiated QoS treatment of groups of related downlink PDUs in the 5G System by marking them with PDU Set related metadata that is then processed by the 5GS. An RTC Client may enable differentiated QoS treatment of groups of related uplink PDUs in the 5G System by marking them with PDU Set related metadata that is then processed by the UE modem and subsequently by the 5GS. The handling of PDU Sets is defined in clause 5.37.5 of [11].

[With appropriate configuration, the 5G System can also identify certain unmarked PDUs at reference point N6 (so-called "N6-unmarked PDUs") and apply differentiated QoS treatment to them. In this release, the differentiated QoS treatment of N6-unmarked PDUs by the 5G System can be configured by the RTC AF.]

- When the *PDU Set based QoS handling* is enabled, the 5G System attempts to deliver all PDUs marked as belonging to the samePDU Set within a configured PDU Set Delay Budget and PDU Set Error Rate.

- When the *PDU Set Integrated Handling* is enabled, the 5G System attempts to deliver all PDUs marked as belonging to the same PDU Set. Hence, if all PDUs that comprise a particular Application Data Unit (ADU), such as a video frame or slice, are assigned to the same PDU Set, the chance that this ADU is delivered complete and intact to the intended RTC Client recipient is increased.

2. The handling of *dynamically changing traffic characteristics* by the 5G System:

- *Downlink data bursts*. An RTC session may benefit from providing information to the 5GS about the burstiness of media traffic. An *end of data burst indication* and/or *time to next burst indication* enables the RAN to configure UE power management schemes such as connection management state and discontinuous reception (DRx). An indication of the *data burst size* assists the RAN in radio resource management. The handling of downlink data bursts is defined in clauses 5.37.8.3, 5.37.10.1 and 5.37.10.2 of [11].

- *Expedited data transfer with reflective QoS for non-GBR Service Data Flows*. An RTC session without a guaranteed bit rate may benefit from temporary expedited transfer by the UPF of a subset of media data. Using this, an RTC endpoint can dynamically request and leverage an available faster data transfer to ensure timely delivery of large media payloads, such as video key frames or XR scene descriptions. The handling of expedited data transfers by the 5G System is defined in clause 5.37.10.3 of [11].

NOTE 1: Expedited transfer indication marking is applicable only when a UE hosting the RTC Client supports reflective QoS, as defined in clause 6.1.3.27.9 of TS 23.503 [14].

3. *RTP Session and RTP/RTCP transport multiplexing* are described in sections 4.4 and 4.5 of RFC 8834 [15] allows several media streams and control packets comprising an RTC session to be combined into a single Application Data Flow. This offers a number of operational benefits, including simplified network management, reduced media transport overhead, improved NAT traversal, faster connection establishment and enhanced interoperability and scalability. The handling of multiplexed media flows to enable differentiated treatment by the 5G System is defined in clause 5.37.11 of [11]. However, differentiated handling of multiplexed media flows is optional as the default case is to apply no differentiated treatment in the 5G System.

An RTC endpoint incorporates an instance of the WebRTC Framework configured by the RTC System defined in the present document. An RTC endpoint is typically realised by a UE, but an RTC AS, possibly deployed as an edge computing server as defined in clause 4.4.2, may also play the role of RTC endpoint. The Application Provider provides an RTC Application on the UE to make use of RTC endpoint and network functions using interfaces and APIs. The RTC architecture defines the functions and entities to support WebRTC-based service over the 5G System. Two main functions are defined in the Trusted DN.

- RTC AF: An Application Function as defined in TS 26.501 [6] dedicated to real-time media communication.

- RTC AS: An Application Server dedicated to real-time media communication.

NOTE 2: If both the RTC AF and RTC AS are deployed in an external DN, this is out of scope of the present document.

The detailed RTC architecture mapping to the overall high-level architecture in figure 4.1.1‑1 is shown in figure 4.1.1‑2 below.



NOTE 1: Some subfunctions may not be required depending on the collaboration scenario. Description of collaboration scenario and its architecture variant are specified in annex A.

NOTE 2: Void.

NOTE 3: Red ovals indicate API provider functions.

NOTE 4: The RTC Access Function may be realised by a web browser in deployments of the RTC Client that support Web App through the W3C defined JavaScript APIs including WebRTC API.

Figure 4.1.1-2: RTC General Architecture

The WebRTC Signalling Function may be co-located with the RTC AF. In such deployments, the WebRTC Signalling Function acts as an RTC AF with access to the 5G Core, and some of the RTC AF interactions with the WebRTC Signalling Function may be replaced to avoid concurrent/redundant requests from the RTC endpoint in the UE. Specifically, media session handling interactions between the RTC AF and the UE at reference point RTC‑5 may be replaced by the equivalent WebRTC signalling interactions defined at reference point RTC‑4.

The subfunctions inside the RTC AF, RTC AS and the RTC Client are defined in clause 4.2 and the reference points shown in figure 4.1.1-2 are defined in clause 4.3.

Two types of RTC Application are defined in the present document:

- *Native WebRTC App:* An RTC Application running on the UE that makes use of client APIs at reference points RTC‑6 and RTC‑7.

- *Web App:* A web application running in a web browser on the UE that makes use of the W3C-defined WebRTC APIs.

NOTE 3: Detailed deployment architecture for the *Native WebRTC App* and the *Web App* are described in annex B.

Next change

### 4.2.10 Media Function

The Media Function may be present as a subfunction of the RTC AS to support RTC sessions. It may offer a wide range of functionality such as:

- A *content server* that serves content to the RTC Access Function, e.g. through a data channel.

- *Media processing* used to perform tasks such as media transcoding, recording, 3D reconstruction, etc.

- *Scene composition* in which the Media Function composes a 3D scene and distributes it to several point-to-point RTC sessions.

- *Multi-point Control Unit (MCU)*: the Media Function offers multi-party conferencing functionality to merge a number of point-to-point RTC sessions.

- *Selective Forwarding Unit (SFU)*: the Media Function offers the selection, copy, and forwarding functionality of RTC sessions produced by multiple RTC Clients or WebRTC session participants external to the RTC System. Outbound media data may additionally be labelled as specified in clause 4.3.3 in order to exploit application-specific handling of PDUs by the 5G System.

- Maintain uplink and downlink flow context (QoS, remote control, etc.) by interacting with the WebRTC Signalling Function in the RTC AS (see clause 4.2.7).

The Media Function is an RTC endpoint that incorporates an implementation of a WebRTC Framework as the basis of the above functionality.

Next change

### 4.2.12 RTC Access Function

An RTC Access Function is a set of functions in the RTC Client that offers:

- Access to real-time media exchanged by its WebRTC Framework with that of one or more other RTC endpoints via reference point RTC-4m and/or RTC-12. Outbound media data may additionally be labelled as specified in clauses 4.3.3 and 4.3.9 respectively in order to exploit application-specific handling of PDUs by the 5G System.[NOTE: this is currently not supported by WebRTC App]

- Relaying WebRTC signalling between the RTC Application at reference point RTC‑7 and the WebRTC Signalling Function of the RTC AS at reference point RTC-4s.

- Provision of client APIs to the *Native WebRTC App* at reference point RTC‑7, as well as exposure of the W3C-defined JavaScript API including WebRTC API [31] to the *Web App* at reference point RTC-7.

- Provision of client APIs to the RTC Media Session Handler at reference point RTC-11.

Next change

### 4.3.2 RTC-3: RTC AS to RTC AF interface

The RTC AS may exchange information regarding the RTC session with the RTC AF. This information may cover QoS flow information and QoS allocation as well as QoE and consumption reports. The RTC AF may subscribe to information about the status of the QoS flow, which it may share with the RTC AS, e.g. in form of bit rate recommendations.

To enable support for PDU Set QoS handling in the 5G System of RTC session application flow:

- The RTC AS shall declare downlink *PDU Set QoS parameters* when instantiating a Dynamic Policy in the RTC AF via reference point RTC-3.

No additional action is required by the RTC AS when instantiating a Dynamic Policy via reference point RTC-3 to enable support for differentiated QoS handling in the 5G System of downlink data bursts in RTC session application flows.

To enable support for differentiated QoS handling in the 5G System of expedited data transfers in RTC session application flows:

- The RTC AS shall declare two non-GBR QoS specifications when instantiating a Dynamic Policy in the RTC AF via reference point RTC-3: one for expedited data transfers and the other for non-expedited data transfers.

To enable support for differentiated QoS handling in the 5G System of RTC session application flows carrying multiplexed traffic per sections 4.4 and 4.5 of RFC 8834 [14]:

- The RTC AS shall declare the *multiplexed media identification information* with which it intends to label media data transmitted at reference point RTC-4 when instantiating a Dynamic Policy in the RTC AF via reference point RTC-3.

Next change

### 4.3.3 RTC-4: Media-centric transport interface via RTC AS

Reference point RTC-4 is used to exchange the WebRTC media traffic between the RTC Access Function and the Media Function of the RTC AS (see clause 4.2.10) as well as to exchange signalling information relating to the WebRTC session with the RTC AS such as WebRTC Signalling Function (see clause 4.2.7).

The traffic includes:

- Media streams sent over RTP

- Application data sent over data channel

- WebRTC Signalling data along with STUN and TURN servers

- Other application data

RTC-4 may further be grouped into two subsidiary reference points as follows.

**RTC-4s:**

The RTC-4s is a subsidiary reference point between the RTC Access Function and the RTC AS such as WebRTC Signalling Function. This interface is used for the exchange of signalling information related to the RTC session between two or more RTC endpoints via the RTC AS.

**RTC-4m:**

This subsidiary reference point is used for transmission of media and other related data between two or more RTC endpoints when at least one of the RTC endpoints participating in an RTC session is instantiated in the RTC AS.

The traffic at the subsidiary reference point RTC-4m includes:

- Media data transmitted over SRTP.

- Application data transmitted using Data Channel.

- Media related metadata transmitted using Data Channel.

- Other application data.

NOTE 1: The Media Function of the RTC AS maintains the status for both uplink and downlink traffic.

NOTE 2: An RTC Client supports WebRTC streaming functions for uplink and downlink traffic.

To support PDU Set QoS handling in the 5G System and to assist the 5GS in configuring appropriate UE connection management state when this feature is enabled for an RTC session at RTC-4m:

- The RTC Access Function of the RTC Client shall include *PDU Set identification information* in the media data it transmits at reference point RTC-4m that fall within the scope of any *Protocol Descriptions* configured on the Application Flow in question.

[NOTE: at the time of this document this is not supported in WebRTC app]

[NOTE: in some cases the UPF or AS can derive the PDU Set information from the RTP streams without additional PDU Set Information identification]

- The Media Function of the RTC AS shall include *PDU Set identification information* in the media data it transmits at reference point RTC-4m that fall within the scope of any *Protocol Descriptions* configured on the Application Flow in question.

Even when PDU Set marking is enabled for an RTC session, some PDUs sent by the RTC AS might still remain unmarked, i.e., they do not include PDU Set identification information. This can occur either because they use a media transport protocol that does not support marking, or because the RTC AS prefers not to mark them – for instance, to avoid the overhead of applying marking to low bit rate streams such as audio. For these N6-unmarked PDUs, the UPF is responsible for determining the appropriate PDU Set Information and assigning the PDUs to a PDU Set, as defined in clause 5.37.5.2 of TS 23.501 [11]. However, the UPF lacks a reliable mechanism to determine the PDU Set Importance (PSI) and can only assign it a preconfigured value, since PSI represents the importance of a PDU Set from the perspective of the RTC AS.

To support QoS support in the 5G System of downlink end of data burst handling for an RTC session at RTC-4m:

- The Media Function of the RTC AS shall additionally include an *end of data burst indication* in the media data it transmits at reference point RTC-4m.

To support QoS handling in the 5G System of downlink data burst size handling for an RTC session at RTC-4m:

- The Media Function of the RTC AS shall include a *data burst size* in the media data it transmits at reference point RTC-4m.

To support QoS handling in the 5G System for time to next data burst for an RTC session at RTC-4m:

- The Media Function of the RTC AS shall additionally include a *time to next* *data burst* in the media data it transmits at reference point RTC-4m.

To support differentiated QoS handling in the 5G System of expedited data transfers when this feature is enabled for an RTC session at RTC-4m:

- The Media Function of the RTC AS shall include an *expedited transfer indication* in the media data it transmits at reference point RTC-4m that it would like the network to deliver in an expedited manner.

To support differentiated QoS handling in the 5G System of application flows carrying multiplexed traffic per sections 4.4 and 4.5 of RFC 8834 [14] when this feature is enabled for an RTC session at RTC-4m:

- The RTC Access Function of the RTC Client shall include *multiplexed media identification information* in the media data it transmits at reference point RTC-4m.

- The Media Function of the RTC AS shall include multiplexed media identification information in the media data it transmits at reference point RTC-4m.

Next change

### 4.3.4 RTC-5: Transport control interface

Reference point RTC-5 is used to convey configuration information from the RTC AF to the RTC Media Session Handler and is used by the RTC Media Session Handler to request media session handling support from the RTC AF for RTC sessions. The configuration information may consist of static information such as the following:

- Recommendations for media configurations.

- Configurations of STUN and TURN server locations.

- Configuration of the QoE metrics reporting feature.

- Configuration of the media consumption reporting feature.

- Discovery information for WebRTC signalling and data channel servers and their capabilities.

The support functionality includes the following:

- RTC MSH receives the configuration information.

- RTC MSH informs the RTC AF about an RTC session and its state.

- RTC MSH requests QoS allocation for a starting or modified session.

- To enable support for PDU set based QoS handling in the 5G System of RTC session Application Data Flows, the RTC MSH shall declare uplink *PDU Set QoS parameters* and a *Protocol Description* of the media transport protocol negotiated on the Application Flow in question when instantiating a Dynamic Policy in the RTC AF via reference point RTC-5.

- To enable support for differentiated QoS handling in the 5G System of RTC session Application Data Flows carrying downlink data bursts:

- The RTC MSH shall declare *Protocol Description(s)* to be used by the Media AS on the Application Flow(s) in question to indicate the end of a data burst comprising one or more PDU Sets.

- When the time to next burst feature is enabled for an RTC session, the RTC MSH shall declare the *Protocol Description(s)* to be used by the Media AS on the Application Flow(s) in question to label downlink PDUs belonging to the same data burst with the indicated time to next burst.

- When the data burst size feature is enabled for an RTC session, the RTC MSH shall declare the *Protocol Description(s)* to be used by the Media AS on the Application Flow(s) in question to label downlink PDUs belonging to the same data burst with the indicated data burst size.

NOTE: There is no support in the 5G System for differentiated QoS handling of uplink data bursts.

- To enable support differentiated QoS handling in the 5G System of RTC session application flows carrying expedited data transfers, the RTC MSH shall declare two non-GBR QoS specifications when instantiating a Dynamic Policy in the RTC AF via reference point RTC-5: one for expedited data transfers and the other for non-expedited data transfers.

- To enable support for differentiated QoS handling in the 5G System of RTC session application flows carrying multiplexed traffic per sections 4.4 and 4.5 of RFC 8834 [14], the RTC MSH shall declare the *multiplexed media identification information* with which the RTC Client intends to label media data transmitted at reference point RTC-4m or RTC-12 when instantiating a Dynamic Policy in the RTC AF via reference point RTC-5.

- RTC MSH receives notifications about changes to the QoS allocation for the ongoing RTC session.

- RTC MSH receives updated information about the RTC session with the RTC STUN/TURN/Signalling function, e.g. to identify a RTC session and associate it with a QoS template.

- RTC MSH collates QoE metrics received from the RTC Access Function, and submits metrics reports to the RTC AF.

- RTC MSH collates media consumption information received from the RTC Access Function and submits consumption reports to the RTC AF.

Next change

### 4.3.9 RTC-12: Peer-to-peer media-centric transport interface

Reference point RTC-12 is used to exchange WebRTC traffic between RTC Access Functions in different UEs when the 5G System permits peer-to-peer media transport. The protocols supported at this reference point shall be a subset of those at reference point RTC-4m.

NOTE: In case of peer-to-peer communication at reference point RTC-12, the UPF provides the functionalities as specified in TS 23.501 [11], such as traffic usage reporting for billing and the Lawful Interception (LI) collector interface.

To support PDU Set QoS handling in the 5G System and to assist the 5GS in configuring appropriate UE power management schemes when this feature is enabled for an RTC session at RTC-12:

- The RTC Access Function of the RTC Client shall include *PDU Set identification information* in the media data it transmits at reference point RTC-12.

[NOTE: This is currently not supported in webRTC client implementations.]

To support differentiated QoS handling in the 5G System of downlink data bursts when this feature is enabled for an RTC session at RTC-12:

- The RTC Access Function of the RTC Client shall additionally include an *end of data burst indication* and/or a *data burst size* and/or *time to next data burst* indication in the media data it transmits at reference point RTC-12.

[NOTE: This is currently not supported in webRTC client implementations.]

To support differentiated QoS handling in the 5G System of expedited data transfers when this feature is enabled for an RTC session at RTC-12:

- The RTC Access Function of the RTC Client shall include an *expedited transfer indication* in the media data it transmits at reference point RTC-12 that it would like the network to deliver in an expedited manner.

[NOTE: This is currently not supported in webRTC client implementations.]

To support differentiated QoS handling in the 5G System of application flows carrying multiplexed traffic per sections 4.4 and 4.5 of RFC 8834 [14] when this feature is enabled for an RTC session at RTC-12:

- The RTC Access Function of the RTC Client shall include *multiplexed media identification information* in the media data it transmits at reference point RTC-12.

Next change

## 4.7 Dynamic Policies for RTC

### 4.7.1 General

Per clause 4.3.5:

- An RTC Client may instantiate a Dynamic Policy in the RTC AF to configure QoS allocation in the 5G Core to support a new or existing RTC session.

- An RTC AS may instantiate a Dynamic Policy in the RTC AF to configure QoS allocation in the 5G Core to support a new or existing RTC session.

The Dynamic Policy invoker (i.e., the RTC Media Session Handler of the RTC Client or the Media Function of the RTC AS) that created a Dynamic Policy instance may subsequently modify or destroy it. A Dynamic Policy invoker shall not modify or destroy a Dynamic Policy instance created by another Dynamic Policy invoker.

The following clauses define the usage of Dynamic Policies to support application-specific PDU handling features defined in the 5G Core.

### 4.7.2 PDU Set based QoS Handling

#### 4.7.2.1 General

If PDU Set based QoS handling is desired when instantiating a new Dynamic Policy in the RTC AF, the Dynamic Policy invoker (i.e., the RTC Media Session Handler of the RTC Client or the Media Function of the RTC AS) shall provide one or more PDU Set QoS parameters (as defined in clause 5.7.7 of TS 23.501 [11]) and it shall indicate the media transport protocol used on the corresponding Application Data Flow in the form of a Protocol Description.

#### 4.7.2.2 N6-unmarked PDUs

If previously negotiated with the RTC AS during the WebRTC signalling phase of the RTC session, an RTC Media Session Handler may, when instantiating a new Dynamic Policy, indicate to the RTC AF the PDU Set Importance (PSI) values to be associated with each of the application protocols used by N6-unmarked PDUs on the application flows of the RTC session.

NOTE: This feature provides the UPF with application-specific PSI information to apply to N6-unmarked PDUs.

[NOTE: To be confirmed that 5GS can support this from SA WG2]

### 4.7.3 Dynamically changing traffic characteristics

#### 4.7.3.1 Downlink data bursts

##### 4.7.3.1.1 General

For downlink traffic only, the UPF may assist NG-RAN in radio resource management to benefit efficient resource utilization and UE power saving by marking dynamically changing traffic characteristics such as the end of a data burst (as defined in clause 5.37.8.3 of TS 23.501 [11]), data burst size (as defined in clause 5.37.10.1 of [11]) and time to next burst (as defined in clause 5.37.10.2 of [11]) at the level of individual downlink data bursts.

The configuration of downlink data burst handling applies only when the RTC Media Session Handler of the RTC Client acts as the Dynamic Policy invoker; this feature shall not be configured by the Media Function of the RTC AS.

##### 4.7.3.1.2 End of data burst

To enable end of data burst as a dynamically changing downlink traffic characteristic when instantiating a Dynamic Policy in the RTC AF, the RTC Media Session Handler shall include in its request the media transport protocol parameters (specifically a downlink Protocol Description) to be applied by the RTC AS to indicate the end of a data burst in downlink PDUs.

##### 4.7.3.1.3 Data burst size

To enable data burst size support as a dynamically changing downlink traffic characteristic when instantiating a Dynamic Policy in the RTC AF, the RTC Media Session Handler shall include in its request the media transport protocol parameters (including a Data Burst Size Marking indication and a corresponding downlink Protocol Description) to be applied by the RTC AS to downlink PDUs belonging to the same data burst to indicate the size of that data burst.

The RTC AF shall provide this information to the 5G Core to assist with the detection and identification of RTC media data used by the RTC AS to transport the data burst size information in downlink PDUs it contributes at reference point RTC-4m.

See also clause 4.3.3 for packet marking requirements to signal data burst size at reference point RTC-4m.

##### 4.7.3.1.4 Time to next burst

To enable time to next burst support as a dynamically changing downlink traffic characteristic when instantiating a Dynamic Policy in the RTC AF, the RTC Media Session Handler shall include in its request the media transport protocol parameters (including a Time to Next Burst Marking indication and a corresponding downlink Protocol Description) to be applied by the RTC AS to downlink PDUs belonging to the same data burst with the time until the next burst.

The RTC AF shall provide this information to the 5G Core to assist with the detection and identification of RTC media data used by the RTC AS to transport the time to next burst information in downlink PDUs it contributes at reference point RTC-4m.

See also clause 4.3.3 for packet marking requirements to signal the time to next burst at reference point RTC-4m.

#### 4.7.3.2 Expedited data transfer with reflective QoS

To enable expedited transfer with reflective QoS for non-GBR QoS flows (as defined in clause 5.37.10.3 of TS 23.501 [11]) when instantiating a Dynamic Policy in the RTC AF, the RTC Media Session Handler shall include in its request descriptions of two media flows with the same Service Data Flow (SDF) filter, but different QoS requirements corresponding to:

- Elevated QoS requirements for expedited data transfers.

- Non-elevated QoS requirements for regular (non-expedited) data transfers.

See also clause 4.3.3 for packet marking requirements to signal expedited PDUs at reference point RTC-4m.

### 4.7.4 Media transport multiplexing

- When RTC endpoints have established the use of RTP stream multiplexing (in an RTC session as described in section 4.4 of RFC 8834 [14]), the set of media flows comprising the RTC session shall be declared in the same Dynamic Policy instance along with *multiplexed media identification information* to be used by those RTC endpoints in uplink packets transmitted at reference point RTC-12.

- When RTC endpoints have successfully negotiated the use of SRTP and RTCP multiplexing in an RTC session, the set of RTP and RTCP streams shall be declared in a single Dynamic Policy instance using appropriate *multiplexed media identification information*.

See also provisions for declaring the multiplexing of media flows on an RTC session in clauses 4.3.2 and 4.3.4, as well as provisions for the labelling of PDUs in multiplexed application flows at reference point RTC-4m defined in clauses 4.3.3 and 4.3.9.

End of changes