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TECHNICAL SPECIFICATION

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LTE;
5G;
Telecommunication management;
Quality of Experience (QoE)
measurement collection Integration Reference Point (IRP);
Requirements
(3GPP TS 28.307 version 16.0.0 Release 16)

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In the present document "**shall**", "**shall not**", "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the ETSI Drafting Rules (Verbal forms for the expression of provisions).

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Contents

Foreword

This Technical Specification| has been produced by the 3rd Generation Partnership Project (3GPP).

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of the present document, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

Version x.y.z

where:

x   the first digit:

1   presented to TSG for information;

2   presented to TSG for approval;

3   or greater indicates TSG approved document under change control.

y   the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.

z   the third digit is incremented when editorial only changes have been incorporated in the document.

In the present document, modal verbs have the following meanings:

shall   indicates a mandatory requirement to do something

shall not   indicates an interdiction (prohibition) to do something

The constructions "shall" and "shall not" are confined to the context of normative provisions, and do not appear in Technical Reports.

The constructions "must" and "must not" are not used as substitutes for "shall" and "shall not". Their use is avoided insofar as possible, and they are not used in a normative context except in a direct citation from an external, referenced, non-3GPP document, or so as to maintain continuity of style when extending or modifying the provisions of such a referenced document.

should   indicates a recommendation to do something

should not   indicates a recommendation not to do something

may   indicates permission to do something

need not   indicates permission not to do something

The construction "may not" is ambiguous and is not used in normative elements. The unambiguous constructions "might not" or "shall not" are used instead, depending upon the meaning intended.

can   indicates that something is possible

cannot   indicates that something is impossible

The constructions "can" and "cannot" are not substitutes for "may" and "need not".

will   indicates that something is certain or expected to happen as a result of action taken by an agency the behaviour of which is outside the scope of the present document

will not   indicates that something is certain or expected not to happen as a result of action taken by an agency the behaviour of which is outside the scope of the present document

might   indicates a likelihood that something will happen as a result of action taken by some agency the behaviour of which is outside the scope of the present document

might not indicates a likelihood that something will not happen as a result of action taken by some agency the behaviour of which is outside the scope of the present document

In addition:

is (or any other verb in the indicative mood) indicates a statement of fact

is not (or any other negative verb in the indicative mood) indicates a statement of fact

The constructions "is" and "is not" do not indicate requirements.

Introduction

The present document is part of a TS-family covering the 3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; Telecommunication management, as identified below:

TS 28.307: Management of Quality of Experience (QoE) measurement collection Integration Reference Point (IRP); Requirements

TS 28.308: Management of Quality of Experience (QoE) measurement collection Integration Reference Point (IRP); Information Service (IS)

TS 28.309: Management of Quality of Experience (QoE) measurement collection Integration Reference Point (IRP); Solution Set (SS) definitions

One main motivation of mobile network evolution is to improve the user experience why the evaluation at the UE side is vital to network operators, especially when the operators provide some real-time services which require for example high date rate and low latency like streaming services (typically video services).

Quality of Experience (QoE) information collection provides detailed information at session level on a number of UEs.

The operator can initiate logging of QoE information of an end user service. The collected information (specified in 3GPP TS 26.247 [2]) cannot be deduced from performance measurements in the mobile network.

The QoE information is information collected by the end user application in the UE.

The QoE information is collected by the management system (e.g. an Operations System (OS) in TMN terminology) for analysis and/or KPI calculations.

1 Scope

The present document addresses Integration Reference Point (IRP) requirements for the function Quality of Experience (QoE) measurement collection in UMTS and LTE. The measurements that are collected are DASH [2] and MTSI [5] measurements.

The function includes collecting QoE information from UEs frequenting a specified area.

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 TS 26.247: "Transparent end-to-end Packet-switched Streaming Service (PSS); Progressive Download and Dynamic Adaptive Streaming over HTTP (3GP-DASH)".

[3] 3GPP TS 28.404: "Telecommunication management; Quality of Experience (QoE) measurement collection; Concepts, use cases and requirements".

[4] 3GPP TS 25.331: "Radio Resource Control (RRC); Protocol specification".

[5] 3GPP TS 26.114: "IP Multimedia Subsystem (IMS); Multimedia Telephony; Media handling and interaction".

3 Definitions of terms, symbols and abbreviations

3.1 Terms

For the purposes of the present document, the terms given in TR 21.905 [1] and the following apply. A term defined in the present document takes precedence over the definition of the same term, if any, in TR 21.905 [1].

3.2 Symbols

Void.

3.3 Abbreviations

For the purposes of the present document, the abbreviations given in 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 TR 21.905 [1].

NRS   Network Request Session
NOTE: See TS 28.404 [3].

RECS   RECording Session

NOTE: See 3GPP TS 28.404 [3].

UERS   UE Request Session

NOTE: See 3GPP TS 28.404 [3].

4 Concepts and background

The collection of QoE information for a specified end user service/end user service type either from UEs in a specified area. The collected information is transported to a collection centre, where it can be analysed and/or KPIs can be calculated.

A collection can be requested by an operator technician via the management system to the traffic network. As the network do not have any knowledge which UEs have the capability to record the requested data, therefore the UEs will report whether they have this capability or not when a session set up. UEs that has this capability that match the request from the management system will be requested to start recording the requested information when the request constraints are met. The UE will make the recorded data available for management system.

5 Business Level Requirements

See business level requirements in 3GPP TS 28.404 [3].

6 Specification level requirements

6.1 Requirements

REQ-EUSPC-FUN-1: The IRPManager shall have a capability to request collection of QoE information per end user service/end user service type for a specified area.

REQ-EUSPC-FUN-2: The IRPManager shall have a capability to request the collection of QoE information to be stopped before the time for the NRS has expired.

REQ-EUSPC-FUN-3: The IRPAgent shall have a capability to notify the IRPManager when a collection of QoE information has been stopped before the time for the NRS has expired.

6.2 Actor roles

Please see respective use case.

6.3 Telecommunication resources

Please see respective use case.

6.4 Use cases

6.4.1 Activate collection measurement job for an area in UTRAN

Table 6.4.1-1: Activate collection measurement job for an area

Use case stage	Evolution/Specification	<<Uses>> Related use
Goal	To start collecting QoE information for an end user service type in a specified area.	
Actors and roles	IRPManager: Request the start of collection of QoE information.	
Telecom resources	The RNC and the UE	
Assumptions	There are UEs that has the capability to provide the requested information in the specified area.	
Pre-conditions	None.	
Begins when	The IRPManager requests that a NRS shall be started.	
Step 1(M)	An IRPAgent receives the request and forwards it to the appropriate RNC(s).	
Step 2 (M)	The RNC starts a NRS for the specified area and start checking for UEs that supports QoE information collection.	
Step 3 (M)	For UEs that support QoE information collection, the RNC starts a UERS and forwards the request of collection QoE information to the UE. See ref. 3GPP TS 25.331 [4].	
Step 4 (M)	When the requested end user service is started in the UE, it starts a RECS and records the requested information.	
Step 5 (M)	The UE reports the recorded information to a collection centre via the RNC as long as the end user service session is active during the time for the NRS.	
Step 6 (M)	When the end user service session ends the UE stops the RECS and reports the collected data to a collection centre via the RNC.	
Ends when	When the time for the NRS elapses or when the IRPManager sends a request for de-activation.	
Exceptions		
Post-conditions	None.	
Traceability	REQ-EUSPC-FUN-1.	
NOTE: Steps 4, 5 and 6 are repeated in a NRS for every time a session that starts the requested end user service in the UE.		

NOTE: A similar use case is valid for LTE.

6.4.2 De-activate collection measurement job in UTRAN

Table 6.4.2-1: De-activate collection measurement job

Use case stage	Evolution/Specification	<<Uses>> Related use
Goal	To stop collecting more QoE information for an NRS before the time for the NRS has expired.	
Actors and roles	IRPManager: Request to stop the collection of QoE information.	
Telecom resources	The RAN node, HSS and the UE	
Assumptions	None.	
Pre-conditions	A NRS is started.	
Begins when	The IRPManager requests that a NRS shall be stopped.	
Step 1 (M)	An IRPAgent receives the request and forwards it to the RNC or the HSS.	
Step 2 (O)	The HSS transfers the request to the RNC via the SGSN.	
Step 3 (M)	The RNC node stops the NRS and informs the UE to not start new RECS.	
Step 4 (O)	The RNC node informs HSS, via SGSN, that the NRS is stopped.	
Step 5 (O)	The HSS stops the NRS.	
Ends when	When the IRP Manager receives the notification that the NRS is stopped.	
Exceptions	None.	
Post-conditions	None.	
Traceability	REQ-EUSPC-FUN-3 and REQ-EUSPC-FUN-4.	

NOTE: A similar use case is valid for LTE.

Annex A (informative): Change history

Change history							
Date	**Meeting**	**TDoc**	**CR**	**Re v**	**Cat**	**Subject/Comment**	**New version**
2017-10	SA5#115	S5-175398				R15 pCR 28.307-000 Introduction and Scope for QoE IRP requirements	0.1.0
2017-10	SA5#115	S5-175399				R15 pCR 28.307-000 Introduction of specification level use cases and requirements for QoE IRP requirements	0.1.0
2019-01	Sa5#123	S5-191296				Including DASH and MTSI in Scope	0.2.0
2019-01	Sa5#123	S5-191297				Restrict to UMTS and LTE	0.2.0
2020-03	SA5#129e	S5-201388				Rapporteur's clean up (using new TS template)	0.3.0
2020-03	SA5#129e	S5-201394				Remove SBA	0.3.0
2020-03	SA5#129e					EditHelp review	0.4.0
2020-06						EditHelp review (editorial changes only)	0.4.1
2020-06	SA#88e	SP-200474				Presented for information and approval	1.0.0
2020-07	SA#88e					Upgrade to change control version	16.0.0

History

Document history		
V16.0.0	July 2020	Publication