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SERIES Q: SWITCHING AND SIGNALLING

Signalling requirements and protocols for the NGN –
Signalling and control requirements and protocols to
support attachment in NGN environments

Requirements and protocol for the interface between a transport location management physical entity and a policy decision physical entity (Ru Interface)

Recommendation ITU-T Q.3223



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Recommendation ITU-T Q.3223

Requirements and protocol for the interface between a transport location management physical entity and a policy decision physical entity (Ru Interface)

Summary

Recommendation ITU-T Q.3223 describes requirements and protocol for the Ru interface between a transport location management physical entity (TLM-PE) in a network attachment control entity (NACE) and a policy decision physical entity (PD-PE) in a resource and admission control entity (RACE) of ITU-T next generation network (NGN) release 1.

Source

Recommendation ITU-T Q.3223 was approved on 29 June 2009 by ITU-T Study Group 11 (2009-2012) under Recommendation ITU-T A.8 procedures.

Keywords

Network attachment, next generation network (NGN), Ru interface.

FOREWORD

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Recommendation ITU-T Q.3223

Requirements and protocol for the interface between a transport location management physical entity and a policy decision physical entity (Ru Interface)

1 Scope

This Recommendation defines the requirements and protocol for the Ru interface (identical to the TC-TC1 interface defined in [ITU-T Y.2012]) between a transport location management physical entity (TLM-PE) in a network attachment control entity (NACE) and a policy decision physical entity (PD-PE) in a resource and admission control entity (RACE) of ITU-T NGN release 1 architecture.

Whenever applicable, this Recommendation specifies the requirements for the Ru interface referring to the Diameter base specifications. Whenever needed, extensions to Diameter-based specifications are provided in this Recommendation.

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 Y.2012] Recommendation ITU-T Y.2012 (2006), *Functional requirements and architecture of the NGN release 1*.
- [ITU-T Y.2014] Recommendation ITU-T Y.2014 (2008), *Network attachment control functions in next generation networks*.
- [ITU-T Y.2111] Recommendation ITU-T Y.2111 (2008), *Resource and admission control functions in next generation networks*.
- [ITU-T Y.2701] Recommendation ITU-T Y.2701 (2007), *Security requirements for NGN release 1*.
- [ETSI TS 129 229] ETSI TS 129 229 v8.6.0 (2009), *Digital cellular telecommunication system (Phase 2+); Universal Mobile Telecommunications system (UMTS); LTE; Cx and Dx interfaces based on the Diameter protocol*.
- [ETSI TS 129 329] ETSI TS 129 329 (2006), *Digital cellular telecommunication system (Phase 2+); Universal Mobile Telecommunications system (UMTS); Sh interface based on the Diameter protocol; Protocol details*.
- [ETSI TS 183 017] ETSI TS 183 017 (2007), *Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Resource and Admission Control: DIAMETER protocol for session based policy set-up information exchange between the Application Function (AF) and the Service Policy Decision Function (SPDF); Protocol specification*.
- [ETSI ES 283 034] ETSI ES 283 034 v1.5.0 (2008), *Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Network Attachment Sub-System (NASS); e4 interface based on the Diameter protocol*.

3 Definitions

3.1 Terms defined elsewhere

This Recommendation uses the following terms defined elsewhere:

3.1.1 authentication [ITU-T Y.2014]: A property by which the correct identifier of an entity or party is established with a required assurance. The party being authenticated could be a user, subscriber, home environment or serving network.

3.1.2 authorization [b-ITU-T X.800]: The granting of permission based on authenticated identification.

NOTE – In some contexts, authorization may be granted without requiring authentication or identification, e.g., emergency call services.

3.1.3 customer premises equipment (CPE) [ITU-T Y.2014]: One or more devices allowing a user to access services delivered by NGN.

NOTE – This includes devices under user control commonly referred to as home gateway (HGW) or terminals (TE), etc., but not network-controlled entities such as access gateways.

3.1.4 attribute-value pair (AVP) [ETSI ES 283 034]: Corresponds to an information element in a Diameter message.

NOTE – See [b-IETF RFC 3588] for details.

4 Abbreviations and acronyms

This Recommendation uses the following abbreviations and acronyms:

ABNF	Augmented Backus-Naur Form
AM-PE	Access Management Physical Entity
AVP	Attribute-Value Pair
CPE	Customer Premises Equipment
HGWC-PE	Home Gateway Configuration Physical Entity
IMS	Internet Protocol Multimedia Subsystem
IPSec	Internet Protocol Security
NACE	Network Attachment Control Entity
NACF	Network Attachment Control Function
NAC-PE	Network Access Configuration Physical Entity
NAPT	Network Address and Port Translation
NAS	Network Access Server
NASS	Network Attachment Sub-System
P-CSCF	Proxy Call Session Control Function
PD-PE	Policy Decision Physical Entity
PE-PE	Policy Enforcement Physical Entity
QoS	Quality of Service
RACE	Resource and Admission Control Entity
RACF	Resource and Admission Control Function

RFC	Request For Comments
SCE	Service Control Entity
SCTP	Stream Control Transport Protocol
SDP	Session Description Protocol
SIP	Session Initiation Protocol
TAA-PE	Transport Authentication and Authorization Physical Entity
TLM-PE	Transport Location Management Physical Entity
TRC-PE	Transport Resource Control Physical Entity
TUP-PE	Transport User Profile Physical Entity

5 Ru interface

5.1 Overview

The network attachment control function (NACF) maintains information about IP-connectivity access sessions associated with user equipment connected to the NGN. This information is stored in the transport location management physical entity (TLM-PE) and it is pushed to or pulled from the PD-PE in the RACE when the initial attachment is established or the PD-PE needs the information to make a decision (see Figure 5-1):

5.2 Reference point

This clause describes the Ru reference point.

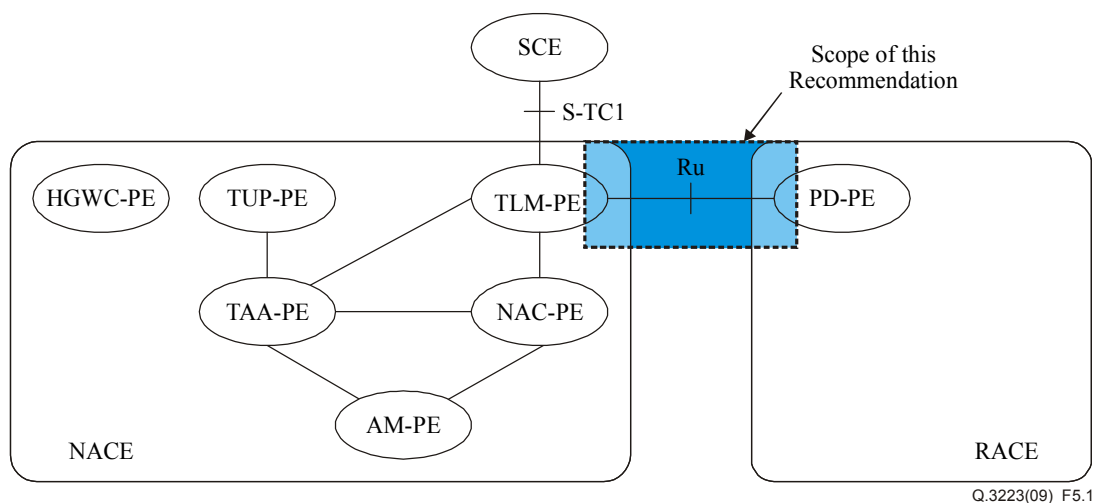


Figure 5-1 – Ru reference point

5.3 Physical entities

Table 5-1 indicates the mapping from the functional entities to the physical entities implementing them.