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SERIES H: AUDIOVISUAL AND MULTIMEDIA SYSTEMS

Infrastructure of audiovisual services – Communication
procedures

Gateway control protocol: Generic pull mode package

Recommendation ITU-T H.248.55

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Gateway control protocol: Generic pull mode package

Summary

H.248 represents a resource control protocol concerning the control of media gateway-level resources. There are two major categories concerning resource control strategies: push mode and pull mode. Push mode is an inherent architectural characteristic of the H.248 master-slave model, where the master entity MGC is pushing the slave entity MG into a particular mode. Pull mode is also supported by the H.248 protocol architecture, but requires additional protocol elements to control a particular pull mode scenario. Recommendation ITU-T H.248.55 defines a generic set of such capabilities.

Source

Recommendation ITU-T H.248.55 was approved on 13 June 2008 by ITU-T Study Group 16 (2005-2008) under Recommendation ITU-T A.8 procedure.

FOREWORD

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

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Gateway control protocol: Generic pull mode package

1 Scope

There are various resource control mechanisms used in next generation networks (NGNs) such as those described in [ITU-T Y.2111]. A policy control mechanism (such as QoS resource control) is described by this Recommendation. The mechanism itself may result in different control scenarios that are primarily dependent on dedicated user and customer premises equipment (UE, CPE) types. This Recommendation describes how H.248 entities behave in such a network environment, and defines an H.248 package, which may be used in a specific resource control scenario.

Clause 6 provides a background on resource and admission control functions (RACFs) and discusses the resource control modes. The clause then focuses on the "pull mode" of resource control and provides a mapping of the RACF functions and flows of this mode to the H.248 architecture.

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*.
- [ITU-T H.248.13] Recommendation ITU-T H.248.13 (2002), *Gateway control protocol: Quality Alert Ceasing package*.
- [ITU-T H.248.14] Recommendation ITU-T H.248.14 (2002), *Gateway control protocol: Inactivity timer package*.
- [ITU-T H.248.36] Recommendation ITU-T H.248.36 (2005), *Gateway control protocol: Hanging Termination Detection package*.
- [ITU-T H.248.40] Recommendation ITU-T H.248.40 (2007), *Gateway control protocol: Application data inactivity detection package*.
- [ITU-T Y.2111] Recommendation ITU-T Y.2111 (2006), *Resource and admission control functions in next generation networks*.

3 Terms and definitions

3.1 Terms defined elsewhere

This Recommendation uses the following terms defined elsewhere:

3.1.1 path-coupled QoS signalling: [ITU-T Y.2111]: A mode of signalling where the signalling messages follow a path that is tied to the data packets. Signalling messages are routed only through nodes that are in the data path.

3.1.2 pull mode [ITU-T Y.2111]: Defined in clause 6.1.2 of [ITU-T Y.2111], "Scenario 2: Pull mode QoS resource control scenario".

3.1.3 push mode [ITU-T Y.2111]: Defined in clause 6.1.2 of [ITU-T Y.2111], "Scenario 1: Push mode QoS resource control scenario".

3.2 Terms defined in this Recommendation

This Recommendation defines the following term:

3.2.1 authorization token: A piece of information, either clear or encrypted, which can be used to validate a request for specific resources. This information is used as a unique identifier in policy pull mode. The token is generated by the MGC and may be sent back by the MG to the MGC for the re-authorization of the resource request in the pull mode.

NOTE – The authorization token may or may not use H.248 information elements.

4 Abbreviations and acronyms

This Recommendation uses the following abbreviations and acronyms:

ATM	Asynchronous Transfer Mode
CPE	Customer Premises Equipment
IP	Internet Protocol
MG	Media Gateway
MGC	Media Gateway Controller
MID	Message Identifier
NACF	Network Attachment Control Function
NGN	Next Generation Network
PD-E	Policy Decision Entity
PE-E	Policy Enforcement Entity
PSTN	Public Switched Telecommunications Network
QoS	Quality of Service
RACF	Resource and Admission Control Function
SCF	Service Control Functions
UE	User Equipment
VMG	Virtual Media Gateway

5 Conventions

None.

6 Resource control framework

6.1 Background

Figure 1 provides a simplified model of RACFs in next generation networks. The RACF is aimed at providing real-time application-driven and policy-based transport resource management for a wide range of services and for a variety of transport technologies. See [ITU-T Y.2111] for a detailed description of the RACF subsystem within an NGN.

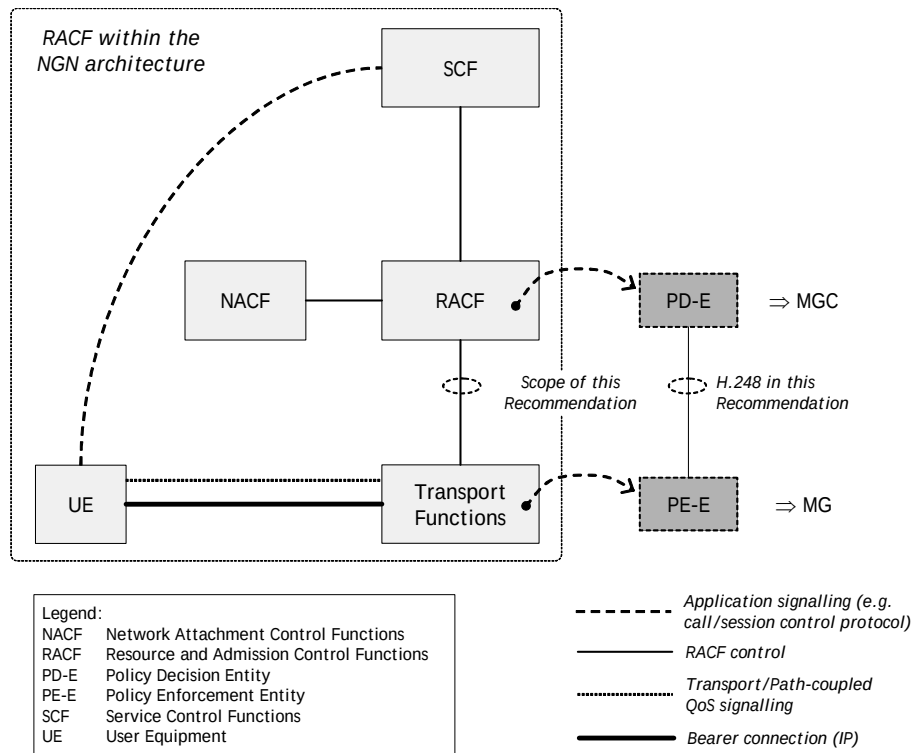


Figure 1 – Simplified model of a NGN architecture – Relationship to this Recommendation

The policy decision entity (PD-E) and policy enforcement entity (PE-E) are elements of this network architecture and in scope of this Recommendation because both could be mapped to H.248 entities (see [b-ITU-T Q.3300] and [b-ITU-T Q.3303.0]).

6.2 Resource control mechanisms

The RACF should support different *resource control modes* in order to handle different types of user equipment (UE), customer premises equipment (CPE) and/or transport QoS capabilities (see clause 6 of [ITU-T Y.2111]). This clause describes those control modes and their relationship to this Recommendation.

6.2.1 Push versus pull mode

There are two basic *resource control modes* (see clause 6.1.1 of [ITU-T Y.2111]):

- 1) Push mode: The RACF makes the authorization and resource control decision based on policy rules and autonomously instructs the transport functions to enforce the policy decision.
- 2) Pull mode: The RACF makes the authorization decision based on policy rules and, *upon the request* of the transport functions, re-authorizes the resource request and responds with the final policy decision for enforcement.

The correspondent high-level resource control scenarios are summarized by Figure 2. The detailed signalling and control phases are not relevant for this Recommendation (they are outlined in [ITU-T Y.2111]). For information regarding messages associated with each of the numbered flows below see [b-ITU-T Q-Sup.59].