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SERIES Q: SWITCHING AND SIGNALLING

Signalling requirements and protocols for the NGN –
Resource control protocols

**Resource control protocol No. 4 (rcp4) –
Protocols at the Rc interface between a
transport resource control physical entity and a
transport physical entity: COPS alternative**

Recommendation ITU-T Q.3304.1



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Resource control protocol No. 4 (rcp4) – Protocols at the Rc interface between a transport resource control physical entity and a transport physical entity: COPS alternative

Summary

Recommendation ITU-T Q.3304.1v2 provides the Stage 3 technical specifications for a protocol variant which uses the common open policy service (COPS) (described in IETF RFC 2748) to satisfy the requirements for information transfer across the Rc reference point, as defined in clause 9.3 of Recommendation ITU-T Y.2111. This protocol allows a transport resource control physical entity (TRC-PE) to collect network topology and resource status information from elements of an access or a core network.

History

Edition	Recommendation	Approval	Study Group
1.0	ITU-T Q.3304.1	2007-10-29	11
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FOREWORD

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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.

Compliance with this Recommendation is voluntary. However, the Recommendation may contain certain mandatory provisions (to ensure, e.g., interoperability or applicability) and compliance with the Recommendation is achieved when all of these mandatory provisions are met. The words "shall" or some other obligatory language such as "must" and the negative equivalents are used to express requirements. The use of such words does not suggest that compliance with the Recommendation is required of any party.

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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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Recommendation ITU-T Q.3304.1

Resource control protocol No. 4 (rcp4) – Protocols at the Rc interface between a transport resource control physical entity and a transport physical entity: COPS alternative

1 Scope

This Recommendation provides the Stage 3 technical specifications for a protocol satisfying the requirements for information transfer across the Rc reference point, as defined in clause 9.3 of [ITU-T Y.2111]. This protocol allows a transport resource control physical entity (TRC-PE) to collect network topology and resource status information from elements of an access or a core network.

The normative part of this Recommendation uses or refers to messages which are defined and their behaviours are described in one or more IETF RFCs. To help the users of this Recommendation, a list of all these messages and their origins is provided in Annex B.

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 Q.3300 v2] Recommendation ITU-T Q.3300 v2 (2010), *Architectural framework for the Q.33xx series of Recommendations*.
- [ITU-T Y.2012] Recommendation ITU-T Y.2012 (2010), *Functional requirements and architecture of next generation networks*.
- [ITU-T Y.2111] Recommendation ITU-T Y.2111 (2011), *Resource and admission control functions in next generation networks*.
- [IETF RFC 2104] IETF RFC 2104 (1997), *HMAC: Keyed-Hashing for Message Authentication*.
- [IETF RFC 2578] IETF RFC 2578 (1999), *Structure of Management Information Version 2 (SMIv2)*.
- [IETF RFC 2748] IETF RFC 2748 (2000), *The COPS (Common Open Policy Service) Protocol*.
- [IETF RFC 3084] IETF RFC 3084 (2001), *COPS Usage for Policy Provisioning (COPS-PR)*.
- [IETF RFC 3159] IETF RFC 3159 (2001), *Structure of Policy Provisioning Information (SPPI)*.
- [IETF RFC 3318] IETF RFC 3318 (2003), *Framework Policy Information Base*.
- [IETF RFC 4001] IETF RFC 4001 (2005), *Textual Conventions for Internet Network Addresses*.

3 Definitions

3.1 Terms defined elsewhere

This Recommendation uses the following terms defined elsewhere:

3.1.1 client handle [IETF RFC 2748]: A term used to identify a unique request state for a single PEP per client-type.

3.1.2 policy information base (PIB) [IETF RFC 3084]: A term used to identify the type and purpose of unsolicited policy information that is "pushed" from the PDP to the PEP for provisioning policy or sent to the PDP from the PEP as a notification.

3.1.3 transport physical entity (T-PE) [ITU-T Q.3300 v2]: A term used to refer to any device implementing the transport functions in the limited sense provided in clause 7.2.4 of [ITU-T Y.2111] (i.e., those with which the RACF interacts).

3.1.4 transport resource control physical entity (TRC-PE) [ITU-T Q.3300 v2]: A device that implements the transport resource control functional entity (TRC-FE) as defined in clause 7.2.3.3 of [ITU-T Y.2111].

3.2 Terms defined in this Recommendation

This Recommendation defines the following term:

3.2.1 session: The term "session" used in this Recommendation refers to a common open policy service (COPS) signalling relationship established between the TRC-PE acting in the role of a COPS policy decision point (PDP) and the T-PE of acting in the role of a COPS policy enforcement point (PEP).

4 Abbreviations and acronyms

This Recommendation uses the following abbreviations and acronyms:

COPS	Common Open Policy Service
COPS-PR	COPS usage for policy provisioning
DEC	COPS DECision message
DEC Install	COPS DECision Install message
DEC Remove	COPS DECision Remove message
Diffserv	Differentiated Services model
DRE	Data Relay Entity
HMAC	keyed-Hashing for Message Authentication
LSP	Label Switched Path
MPLS	MultiProtocol Label Switching
PDP	Policy Decision Point
PEP	Policy Enforcement Point
PIB	Policy Information Base
PRC	Provisioning Class
PRI	Provisioning Instance
PRID	Provisioning Instance Identifier