
**Information technology — Future
Network — Problem statement and
requirements —**

Part 8:
Quality of Service

*Technologies de l'information — Réseaux du futur — Énoncé du
problème et exigences —*

Partie 8: Qualité de service





COPYRIGHT PROTECTED DOCUMENT

© ISO/IEC 2017, Published in Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

Contents

Page

Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Abbreviated terms	2
5 General	2
5.1 QoS in Future Network (FN).....	2
5.2 Related works on QoS.....	3
5.2.1 ISO/IEC JTC1.....	3
5.2.2 European Telecommunication Standards Institute (ETSI).....	3
5.2.3 Internet Engineering Task Force (IETF).....	3
5.2.4 Internet 2.....	3
5.2.5 Telecommunication Standardization Sector of International Telecommunications Union (ITU-T).....	4
5.3 Prospect of QoS architecture in FN.....	4
6 Problem statement of current networks for QoS	4
6.1 QoS in current networks.....	4
6.1.1 IPv4/IPv6 network.....	4
6.1.2 Next Generation Network (NGN).....	5
6.1.3 WLAN.....	6
6.1.4 Wireless metropolitan area network (WMAN).....	7
6.1.5 Mobile access networks.....	7
6.2 Summary of QoS problems in current networks.....	8
6.2.1 General.....	8
6.2.2 Lack of flexible mechanism supporting new applications.....	9
6.2.3 Lack of aggregate RSVP mechanism for business with same QoS requirements.....	9
6.2.4 Lack of network self-adaptability.....	10
6.2.5 Lack of connection-oriented characteristics.....	10
6.2.6 Lack of fundamental effectiveness.....	10
6.2.7 Lack of standards for QoS mechanism between heterogeneous networks.....	10
6.2.8 Lack of consideration from user perspective.....	10
6.2.9 Poor controllability.....	10
6.2.10 Human factors.....	10
6.2.11 Lack of effective congestion management.....	10
7 Requirements of FNQoS	11
7.1 Cross-layer and global.....	11
7.2 Customizable user service.....	11
7.3 Scalability and flexibility.....	11
7.4 Self-adjustment.....	11
7.5 Focusing on mobility.....	11
7.6 FNQoS service composition.....	11
7.7 Grade and classification of services.....	11
7.8 Quality of Experience.....	12
7.9 Quality of Protection.....	12
7.10 Connection-mode network service.....	12
7.11 FNQoS control technology.....	12
7.12 Effective congestion control mechanisms.....	12
Annex A (informative) Examples of technical issues for QoS realization in FN	13
Bibliography	14

Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by ISO/IEC JTC 1, *Information technology*, Subcommittee SC 6, *Telecommunications and information exchange between systems*.

A list of all parts in the ISO/IEC 29181 series, published under the general title *Information technology — Future network — Problem statement and requirements*, is available on the ISO website.

Introduction

ISO/IEC/TR 29181-1 describes the definition, general concept, problems and requirements for the Future Network (FN). The other parts of ISO/IEC 29181 provide details of various components of the specific technology areas.

This document examines the problems of the Quality of Service (QoS) issues of current networks, and describes the requirements in Future Network QoS architecture and functionality perspectives. It also gives some examples of technical issues for QoS realization in Future Network (see Annex A).

Information technology — Future Network — Problem statement and requirements —

Part 8: Quality of Service

1 Scope

This document describes the problem statements of current networks and the requirements for Future Network (FN) in the Quality of Service (QoS) perspective. This document mainly specifies:

- problems of the current networks for QoS;
- requirements for QoS support in Future Network.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

There are no normative references in this document.