# INTERNATIONAL STANDARD



First edition 2023-01

## Telecommunications and information exchange between systems — Future network architecture —

Part 2: Proxy model-based quality of service

*Télécommunications et échange d'informations entre systèmes — Architecture du réseau du futur —* 

Partie 2: Qualité de service basée sur un modèle de proxy



Reference number ISO/IEC 21558-2:2023(E)



#### **COPYRIGHT PROTECTED DOCUMENT**

#### © ISO/IEC 2023

All rights reserved. Unless otherwise specified, or required in the context of its implementation, 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 CP 401 • Ch. de Blandonnet 8 CH-1214 Vernier, Geneva Phone: +41 22 749 01 11 Email: copyright@iso.org Website: www.iso.org

Published in Switzerland

# Contents

Page

Foreword			iv	
Intr	oductio	)n	v	
1	Scop	)e		
2	Nori	Normative references		
3	<b>Terr</b> 3.1 3.2	<b>ns, definitions and abbreviated terms</b> FNQoS Composition Abbreviated terms		
4	Concept of FNQoS			
	4.1	Description of FNProxy		
	4.2	Type of FNProxy		
	4.3	FNProxy interaction		
		4.3.1 General		
		4.3.2 Bi-S based operator		
		4.3.3 Interaction meaning more than communication		
		4.3.4 FNProxy harmony in collaborations		
	4.4	Composition of FNQoS system	5	
		4.4.1 General		
		4.4.2 Relationships of FNProxies and domains		
		4.4.3 Engines in FNProxy		
		4.4.4 FNQoS system		
		4.4.5 Users of FNQoS system	7	
5	Architectural model of FNQoS systems			
	5.1	Reference model of FNQoS system		
	5.2	Usage of FNQoS system		
		5.2.1 Human-centric usage		
		5.2.2 Interaction between FNQoS systems		
		5.2.3 Inter-working with legacy networks		
Ann	ex A (ir	formative) Tracking concerns of stakeholders to FNQoS system		
Ann	ex B (ir	formative) Evolution of FNQoS architecture		
Bibl	iograp	hy		

#### 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.

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 <a href="https://www.iso.org/directives">www.iso.org/directives</a> or <a href="https://www.iso.org/directives">www.iso.org/directiv

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 <u>www.iso.org/patents</u>) or the IEC list of patent declarations received (see <u>https://patents.iec.ch</u>).

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

For an explanation of 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 www.iso.org/iso/foreword.html. In the IEC, see www.iec.ch/understanding-standards.

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

A list of all parts in the ISO/IEC 21558 series can be found on the ISO and IEC websites.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at <u>www.iso.org/members.html</u> and <u>www.iec.ch/national-committees</u>.

#### Introduction

This document and ISO/IEC 21559-2 both pertain to the Future Network (FN).

This document analyses and specifies how to define the Future Network Quality of Service (FNQoS) based on AI-proxy, and how to express the architecture of FNQoS information system based on FNProxy. The goal of the FNQoS is directly related to ISO/IEC TR 29181-8.

FNQoS architecture not only defines the FNProxy contents of FNQoS, but also describes the necessary functional support required for the operation of FNQoS system. Further, FNQoS architecture itself is the basis for the normal operation of the protocol mechanism supporting FNProxy interaction specified in ISO/IEC 21559-2.

The function of Bidirectional Service (Bi-S) for interaction among FNProxies is the basic element of the FNQoS system. This document is based on the basic elements of Bi-S using ISO/IEC 19501 and ISO/IEC/IEEE 42010 to analyse and stipulate the reusable pervasive reference architecture technology of FNQoS.

The International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC) draw attention to the fact that it is claimed that compliance with this document may involve the use of a patent.

ISO and IEC take no position concerning the evidence, validity and scope of this patent right.

The holder of this patent right has assured ISO and IEC that he/she is willing to negotiate licenses under reasonable and non-discriminatory terms and conditions with applicants throughout the world. In this respect, the statement of the holder of this patent right is registered with ISO and IEC. Information may be obtained from the patent database available at <u>www.iso.org/patents</u> or <u>https://patents.iec.ch</u>.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights other than those in the patent database. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

# Telecommunications and information exchange between systems — Future network architecture —

## Part 2: Proxy model-based quality of service

#### 1 Scope

This document describes the architectural aspects of Future Network (FN) Quality of Service (QoS) based on an FNProxy model, taking into account the requirements described on ISO/IEC TR 29181-8. It describes:

- the concept of future network QoS (FNQoS),
- the architectural model of FNQoS system,
- the usage of FNQoS system.

#### 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.

ISO/IEC 21559-2, Telecommunications and information exchange between systems — Future network protocols and mechanisms — Part 2: Proxy model-based quality of service