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

Part 3:
Networking of everything

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

Partie 3: Réseautique universelle





COPYRIGHT PROTECTED DOCUMENT

© ISO/IEC 2022

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
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Abbreviated terms	3
5 Future Networks — Networking of Everything (FN-NoE)	4
5.1 General.....	4
5.2 Thing-user social networking.....	4
5.3 Thing-user centric communication service.....	5
6 Architecture of FN-NoE	5
6.1 General.....	5
6.2 FN-NoE for thing-user centric communication service.....	7
6.3 Topologies of the FN-NoE.....	8
6.4 Reference model of the FN-NoE.....	9
7 Functional procedure of the FN-NoE	11
7.1 General.....	11
7.2 Thing-user and thing-user social community.....	12
7.3 Organizing and maintaining the thing-user social community.....	14
7.4 Sharing thing-user experiences in the thing-user social community.....	15
7.5 Thing-user manages the subscription and publishing of experiences in the level of cluster and each community tier — Finding the coordinated thing-user.....	15
7.6 Establishing and maintaining the proximal path.....	15
Annex A (informative) FN-NoE thing-user centric communication service	16
Annex B (informative) FN-NoE architecture over RINA (Recursive InterNetwork Architecture) based future networks	18
Bibliography	21

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 www.iso.org/directives or www.iec.ch/members_experts/refdocs).

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) or the IEC list of patent declarations received (see patents.iec.ch).

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 21558 series can be found on the ISO website.

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 www.iso.org/members.html and www.iec.ch/national-committees.

Introduction

This document specifies the Future Network – Networking of everything (FN-NoE) architecture, which is designed to provide further advanced NoE services identified in ISO/IEC TR 29181-9.

ISO/IEC TR 29181-9 is part of the ISO/IEC TR 29181 series of standards on Future Network (FN). ISO/IEC TR 29181-9, which addresses networking issues raised in ISO/IEC TR 29181-1, covers networking of everything.

The scope of this document focuses on the FN-NoE architecture, consisting of access and core networks, thing social networks, and proximity defined networks, in which smart devices participate.

This document provides the general characteristics of NoE which can be applied to future networks such as RINA as shown in [Annex B](#), especially from an Internet of Things (IoT) perspective, through a conceptual model of NoE.

Telecommunications and information exchange between systems — Future network architecture —

Part 3: Networking of everything

1 Scope

This document focuses on networking issues for integrating various networking technologies for integrating various networking techniques to provide the thing-user centric communication service.

This document specifies:

- the architectural model of the Future Network – Networking of Everything (FN-NoE);
- the functional procedure for providing advanced FN-NoE services that integrate various networks.

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/TR 29181-9:2017, *Information technology — Future Network — Problem statement and requirements — Part 9: Networking of everything*