INTERNATIONAL STANDARD

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Information technology — Telecommunications and information exchange between systems — Definition of the relaying functions of a Network layer intermediate system

Technologies de l'information — Télécommunications et échange d'information entre systèmes — Définition de la fonction de transmission d'un système intermédiaire dans la couche réseau

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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. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.
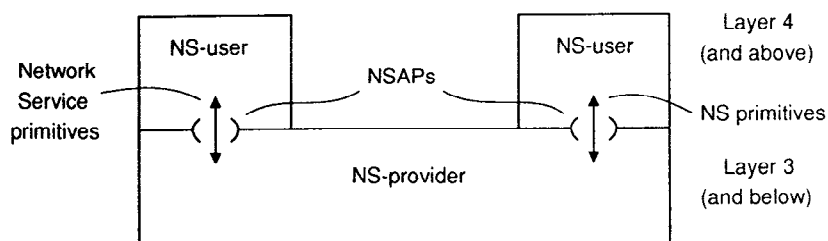
International Standard ISO/IEC 10028 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology,* Sub-Committee SC 6, *Telecommunications and information exchange between systems.*

Annexes A, B and C are for information only.

Introduction

This International Standard is one of the set of standards associated with the Network layer of ISO 7498's Reference Model for Open Systems Interconnection (OSI). It has been developed within the architectural framework defined for the Network layer in ISO 8648.

ISO 8348 defines the OSI Network Service (NS) in terms of the behaviour of a single NS-provider operating as a "black box" between correspondent NS-users, in accordance with ISO TR 8509, as illustrated:

ISO 8648 defines an architectural organization that applies to the internal functioning of the NS-provider within the Network layer. In particular, it provides a common set of concepts and terminology for use in Network layer standards which extends and refines those of ISO 7498.

This International Standard provides a further level of detailed refinement of the description of the NS-provider, by defining the operation of intermediate systems in support of the Network service. This definition remains abstract, in the sense that it is independent of the details of particular subnetworks and protocols.

Other standards specify the use of Network layer protocols by an intermediate system in performing the functions defined in this International Standard.

This International Standard complements those defining the Network service and specifying the use of protocols for NS provision in end systems, in order to provide a complete set of Network layer standards covering each segment of the information flow between correspondent NS users. Other standards deal with associated information flows for routing and management.

Information technology — Telecommunications and information exchange between systems — Definition of the relaying functions of a Network layer intermediate system

1 Scope

This International Standard defines the abstract operation of the relaying functions of a Network entity in an intermediate system, as needed to support the OSI connection-mode Network service.

As the principal means for expressing the definition, the concept of the Network Internal Layer Service is used. This is similar to an OSI layer service, but adapted to expressing the invariants of the information flow within and throughout the layer, rather than just the external functionality of the layer provided between two service access points.

The definition includes the invocation of Network routing functions as a necessary element of the Network relaying functions, but it does not specify how those routing functions are to be realized.

The definition of Network relaying functions applies both to a subnetwork supporting all elements of the Network Service (as defined in ISO 8648), and to a Network relay system interconnecting two subnetworks according to any of the three approaches defined in ISO 8648. In the case of the hop-by-hop harmonization approach to interconnection, the definition of Network relaying functions applies to the result of harmonizing the subnetwork service(s) to the level of the Network Service. The harmonization functions, which require protocol mechanisms to be specified, are outside the scope of this International Standard.

This International Standard is intended for use in guiding the design and application of real interworking units and real subnetworks (eg, local area networks and private packet switched networks) which are to support the OSI NS. It is also intended for use in the development of standards for the Network layer, to ensure that the requirements deriving from the need for Network layer relaying are taken into account.

There are no requirements for conformance to this International Standard.

NOTE — Conformance requirements relating to Network layer relaying are to be found in the specifications for mappings between the Network Internal Layer Service and Network protocols.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards listed below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 7498:1984, *Information processing systems — Open Systems Interconnection — Basic Reference Model*

NOTE — See also CCITT Recommendation X.200 (1993).

CCITT Recommendation X.213 (1992) | ISO/IEC 8348:1993, *Information technology — Open Systems Interconnection — Network service definition.*

ISO/TR 8509:1987, *Information processing systems — Open Systems Interconnection — Service conventions.*

ISO 8648:1987, *Information processing systems — Open Systems Interconnection — Internal organization of the Network layer.*