



INTERNATIONAL TELECOMMUNICATION UNION

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

X.305

INTERWORKING BETWEEN NETWORKS

GENERAL

FUNCTIONALITIES OF SUBNETWORKS RELATING TO THE SUPPORT OF THE OSI CONNECTION-MODE NETWORK SERVICE

ITU-T Recommendation X.305

(Extract from the *Blue Book*)

NOTES

1 ITU-T Recommendation X.305 was published in Fascicle VIII.6 of the *Blue Book*. This file is an extract from the *Blue Book*. While the presentation and layout of the text might be slightly different from the *Blue Book* version, the contents of the file are identical to the *Blue Book* version and copyright conditions remain unchanged (see below).

2 In this Recommendation, the expression “Administration” is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

© ITU 1988, 1993

All rights reserved. No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from the ITU.



Documents
Document Sharing Hub

Recommendation X.305

FUNCTIONALITIES OF SUBNETWORKS RELATING TO THE SUPPORT OF THE OSI CONNECTION-MODE NETWORK SERVICE

(Melbourne, 1988)

The CCITT,

considering

(a) that Recommendation X.200 defines the reference model of open systems interconnection for CCITT applications;

(b) that Recommendation X.213 is the network service definition for open systems interconnection for CCITT applications;

(c) that Recommendation X.300 defines the general principles for interworking between public networks, and between public networks and other networks for the provision of data transmission services; and that Recommendation X.300 indicates in particular how real pieces of network equipment can be represented as subnetworks;

(d) that different types of subnetworks need to be considered, which all support the OSI connection-mode network service in different degrees: and that the different ways in which the different types of subnetworks support the OSI connection-mode network service need to be described,

unanimously declares

(1) that the description of those functionalities of a subnetwork which relate to the connection establishment phase of the OSI connection-mode network services is given in § 6;

(2) that the description of those functionalities of a subnetwork which relate to the connection release phase of the OSI connection-mode network service is given in § 7;

(3) that the description of those functionalities of a subnetwork which relate to the data transfer phase of the OSI connection-mode network service is given in § 8.

CONTENTS

0	<i>Introduction</i>
1	<i>Scope and field of application</i>
2	<i>References</i>
3	<i>Definitions</i>
4	<i>Abbreviations</i>
5	<i>Overview and general characteristics</i>
6	<i>Connection establishment phase</i>
7	<i>Connection release phase</i>
8	<i>Data transfer phase</i>

Annex A - Functionality related to data transfer phase of the OSI connection-mode network service within the different types of subnetworks.

0 Introduction

This Recommendation is one of a set of Recommendations produced to facilitate consideration of interworking between networks. It is related to Recommendation X.300, which defines the general principles for interworking between public networks, and between public networks and other networks for the provision of data transmission services. Recommendation X.300 indicates in particular how collections of physical equipment can be represented as "subnetworks" for consideration of interworking situations.

This Recommendation describes those functionalities of subnetworks which relate to the support of the OSI connection-mode network service.

This Recommendation does not describe those functionalities of subnetworks which do not relate to the support of the OSI connection-mode network service (e.g., those arrangements in Recommendation X.301 which do not relate to the support of the OSI connection-mode network service).

1 Scope and field of application

This Recommendation defines those functionalities of subnetworks which relate to the OSI connection-mode network service in terms of:

- a) the actions and events which occur at the interfaces to a subnetwork;
- b) the parameters associated with each action and event, and the form which they take;
- c) the interrelationship between, and the valid sequences of, these actions and events, for a given connection;
- d) the interrelationship between different connections established through the same subnetwork.

This Recommendation also defines the ways different types of subnetworks support the OSI connection-mode network service, by including within the subnetwork part or all of the functionalities of subnetworks which relate to the OSI connection-mode network service.

The principal objective of this Recommendation is to provide guidance for consideration of interworking between subnetworks, in relation with the support of the OSI connection-mode network service.

This Recommendation does not specify products, or implementations of those functionalities in real network equipment, nor does it constrain the distribution of those functionalities among the pieces of network equipment considered within a given subnetwork (e.g. PDNs, IWFs, ISDNs,

2 References

Recommendation I.430 -	Basic user-network - Layer 1 specification
Recommendation I.431 -	Primary rate user-network interface - Layer 1 specification
Recommendation T.70 -	Network-independent basic transport service for the telematic services
Recommendation Q.701 -	Functional description of the signalling system (Message Transfer Part)
Recommendation Q.702 -	Signalling data link
Recommendation Q.703 -	Signalling link
Recommendation Q.704 -	Signalling network functions and messages
Recommendation Q.705 -	Signalling network structure
Recommendation Q.706 -	Message Transfer Part signalling performance
Recommendation Q.707 -	Testing and maintenance

Recommendation Q.711-	Functional description of the Signalling Connection Control Part (SCCP) of Signalling System No. 7
Recommendation Q.712-	Definition and functions of Signalling Connection Control Part messages
Recommendation Q.713-	Signalling Connection Control Part (SCCP) formats and codes
Recommendation Q.714-	Signalling Connection Control Part procedures
Recommendation Q.921-	ISDN user-network interface data link layer specification
Recommendation Q.931-	ISDN user-network interface layer 3 specification
Recommendation X.21 -	Interface between data terminal equipment (DTE) and data circuit-terminating equipment (DCE) for synchronous operation on public data networks
Recommendation X.25 -	Interface between data terminal equipment (DTE) and data circuit-terminating equipment (DCE) for terminals operating in the packet-mode and connected to public data networks by dedicated circuit
Recommendation X.75 -	Packet switched signalling system between public networks providing data transmission services
Recommendation X.200-	Reference model of open systems interconnections for CCITT applications
Recommendation X.213-	Network service definition for open systems interconnection for CCITT applications
Recommendation X.223-	User of X.25 to provide the OSI connection-mode network service
Recommendation X.300 -	General principles for interworking between public networks, and between public networks and other networks for the provision of data transmission services
Recommendation X.301-	General arrangements for call control within a subnetwork and between subnetworks for the provision of data transmission services

3 Definitions

3.1 This Recommendation makes use of the following terms defined in Recommendation X.200:

- a) network-connection;
- b) network layer;
- c) network service;
- d) subnetwork.

3.2 This Recommendation makes use of the following terms defined in Recommendation X.213:

- a) calling network service user;
- b) called network service user.

3.3 This Recommendation makes use of the following terms defined in Recommendation X.300:

- a) type I subnetwork;
- b) type II subnetwork;
- c) type III subnetwork;
- d) type IV subnetwork.

3.4 Conventions

The arrows used in the figures of § 6 to 8 indicate in a generic way the exchange of information that occurs at the interface of the subnetwork. Their purpose is not to represent the NS primitives conveyed through the horizontal abstract interface between the network layer and the transport layer.

4 Abbreviations

CCSN	Common channel signalling network
CONS	Connection-mode network service
CS	Circuit switched
CSPDN	Circuit switched public data network
DTE	Data terminal equipment
ISDN	Integrated services digital network
IWF	Interworking function
LAPB	Link access procedure balanced
MTP	Message transfer part
MSS	Mobile satellite systems
NC	Network connection
NL	Network layer
NS	Network service
NSP	Network service part
OSI	Open systems interconnection
PLMN	Public land mobile network
PLP	Packet level protocol
PS	Packet switched
PSDN	Packet switched data network
PSPDN	Packet switched public data network
PSTN	Public switched telephone network
QOS	Quality of service
SCCP	Signalling connection control part

5 Overview and general characteristics

5.1 The functionalities of a subnetwork include provision for the transparent transfer of data between two interfaces to the subnetwork, on a connection (NC). More than one NC may exist between the same pair of interfaces.