

First edition
1999-07-01

**Information technology — Enhanced
communications transport service
definition**

*Technologies dell'information — Définition du service de transport de
communications amélioré*

Reference number
ISO/IEC 13252:1999(E)



PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

This document is a preview generated by EVS

© ISO/IEC 1999

All rights reserved. Unless otherwise specified, 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 either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 734 10 79
E-mail copyright@iso.ch
Web www.iso.ch

Printed in Switzerland

Contents

	<i>Page</i>	
1	Scope	1
2	Normative references.....	1
	2.1 Identical Recommendations International Standards.....	1
3	Definitions	2
	3.1 Reference Model definitions	2
	3.2 Service definition conventions	2
	3.3 Quality-of-Service Framework definitions.....	2
	3.4 Enhanced Communications Transport Service definitions.....	2
4	Abbreviations	3
5	Conventions.....	4
	5.1 General conventions.....	4
	5.2 Parameters	4
	5.3 Notations	4
6	Overview and general characteristics.....	4
7	Features of the Enhanced Communications Transport Service	5
8	Model of the Enhanced Communications Transport Service	5
	8.1 Types of Transport Connection.....	5
	8.2 Model of Transport Connection	6
9	Transport Connection characteristics	6
	9.1 Active group integrity	6
	9.1.1 AGI policy.....	7
	9.1.2 Population.....	7
	9.1.3 TC type.....	7
	9.1.4 Transmit diversity.....	7
	9.1.5 Receive diversity	7
	9.1.6 Transmit concurrency.....	7
	9.2 Quality of service	7
10	Quality of service for Transport Connections	8
	10.1 QoS classification.....	8
	10.1.1 TC performance.....	8
	10.1.2 TC reliability	9
	10.1.3 TC ordering	10
	10.1.4 Miscellaneous.....	11
	10.2 Levels of QoS agreement	11
	10.2.1 Best effort level	11
	10.2.2 Guaranteed level.....	11
	10.3 QoS negotiation mechanisms	11
	10.3.1 Generic QoS negotiation	11
	10.3.2 OA QoS negotiation	12
	10.3.3 SWA QoS negotiation.....	14
	10.3.4 Considerations.....	14
	10.4 Phases of QoS agreement.....	15
11	Enhanced Communications Transport Service primitives and parameters.....	16
	11.1 Definitions.....	16
	11.2 Sequence of primitives at a TSAP.....	16

12	TC Creation service	21
12.1	Function.....	21
12.2	Types of primitives and parameters	21
12.2.1	Called address	21
12.2.2	Calling address	21
12.2.3	Responding address.....	21
12.2.4	TC-characteristics.....	21
12.2.5	TS-user data.....	22
12.2.6	Reason	22
12.3	Sequence of primitives	22
13	TC Invitation service	22
13.1	Function.....	22
13.2	Types of primitives and parameters	23
13.2.1	Called address	23
13.2.2	Calling address	23
13.2.3	TC-characteristics.....	23
13.2.4	TS-user data.....	23
13.3	Sequence of primitives	23
13.3.1	Invitation for a heterogeneous TC.....	23
13.3.2	Invitation for a like join	24
14	TC Join service.....	24
14.1	Function.....	24
14.2	Types of primitives and parameters	24
14.2.1	Called address	24
14.2.2	Calling address	25
14.2.3	Responding address.....	25
14.2.4	TC-characteristics.....	25
14.2.5	TS-user data.....	25
14.2.6	Reason	25
14.3	Sequence of primitives	25
15	Data Transfer service.....	26
15.1	Function.....	26
15.2	Types of primitives and parameters	26
15.2.1	Called address	26
15.2.2	Calling address	26
15.2.3	TC-characteristics.....	26
15.2.4	Status	27
15.2.5	TS-user data.....	27
15.3	Sequence of TS primitives	27
16	Pause service	27
16.1	Function.....	27
16.2	Types of primitive and parameters	28
16.2.1	Reason	28
16.3	Sequence of TS primitives suspending data transfer.....	28
17	Resume service.....	28
17.1	Function.....	28
17.2	Types of primitive and parameters.....	28
17.2.1	Reason	29
17.3	Sequence of primitives	29
18	Report service	29
18.1	Function.....	29
18.2	Types of primitive and parameters	29
18.2.1	Reason	29
18.3	Sequence of TS primitives	30

19	TC Leave service	30
	19.1 Function.....	30
	19.2 Types of primitives and parameters	30
	19.2.1 Called address	31
	19.2.2 Calling address	31
	19.2.3 Reason	31
	19.3 Sequence of primitive.....	31
	19.3.1 TS-user rejection of a TC Creation	31
	19.3.2 TS-user rejection of a TC Join	32
	19.3.3 TS-provider rejection of a TC Join attempt.....	32
	19.3.4 TS-user invoked Leave.....	32
	19.3.5 TS-provider expulsion of a TS-user Leave	33
20	TC Termination service	33
	20.1 Function.....	33
	20.2 Types of primitives and parameters	33
	20.2.1 Reason	33
	20.2.2 TS-user data.....	33
	20.3 Sequence of primitives	34
	20.3.1 TC-owner invocation of a TC termination	34
	20.3.2 TS-provider invocation of a TC termination	34
	20.3.3 Simultaneous TC-owner and TS-provider invocation of a TC termination	34
	20.3.4 Unsuccessful TC Creation with multiple TS-user rejection(s).....	35
	20.3.5 Overall TS-user rejections of a TC creation attempt.....	35
	20.3.6 TS-provider rejection of a TC creation attempt due to lack of local resource	36
	20.3.7 TS-provider rejection of a TC creation attempt due to incomplete TC-characteristics.....	36
21	TC-ownership service.....	36
	21.1 Function.....	36
	21.2 Types of primitives and parameters	37
	21.2.1 Called address	37
	21.2.2 Calling address	37
	21.2.3 Responding address.....	37
	21.2.4 TS-user data.....	37
	21.2.5 Reason	37
	21.3 Sequence of primitives	37
	21.3.1 Ownership transfer to a specified TS-user	37
	21.3.2 Ownership transfer to the whole TS-user candidates.....	37
22	Token service.....	38
	22.1 Function.....	38
	22.2 Types of primitives and parameters	38
	22.2.1 Called address	38
	22.2.2 Calling address	38
	22.2.3 Responding address.....	39
	22.2.4 TS-user data.....	39
	22.2.5 Reason	39
	22.3 Sequence of primitives	39
	22.3.1 Token distribution to a specified TS-user	39
	22.3.2 Token return from a specified TS-user.....	40
	22.3.3 Token retrieval from a specified TS-user.....	40
	22.3.4 Token request from a TS-user	41
Annex A	– TC ordering relationships	42
	A.1 Properties of ordering.....	42
	A.1.1 No ordering	42
	A.1.2 Local ordering	42
	A.1.3 Causal ordering	42
	A.1.4 Partial ordering.....	43
	A.1.5 Total ordering.....	43

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 13252 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 6, *Telecommunications and information exchange between systems*, in collaboration with ITU-T. The identical text is published as ITU-T Recommendation X.605.

Annex A forms an integral part of this International Standard.

This document is a preview generated by EVS

Introduction

This Recommendation | International Standard defines a transport service, named Enhanced Communications Transport Service (ECTS), which provides for a multicast capability and enhanced Quality of Service (QoS). This Recommendation | International Standard defines a wide range of services ranging from unreliable unicast with best-effort QoS to reliable multicast with guaranteed QoS. In this way, this Recommendation | International Standard is meant to provide for a uniform and universal service interface between transport protocols and applications of the present and the future information age, especially for those applications requiring versatile and powerful multimedia group communication capabilities underneath. Figure Intro.1 depicts the general architectural block diagram showing how ECTS relates to other protocols in the transport, application as well as network layers.

ECTP in Figure Intro. 1 is a protocol which is supposed to support all the services defined by this Recommendation | International Standard. ECTP is (to be) defined in a separate Recommendation | International Standard.

Note that not all the transport protocols shown in Figure Intro. 1 support all the services defined by ECTS. For example, TCP provides a best-effort reliable unicast service; UDP supports a best-effort unreliable multicast service. MTP, RMP, and SRM support reliable multicast but with null QoS. RTP provides means for exchanging synchronization information but does not define mechanisms to provide the synchronization itself.

ECTP, a companion protocol to ECTS, further will utilize, wherever possible, the multicast capabilities of the underlying network infrastructures. For example, in operation in Internet, ECTP will make extensive use of the multicast capabilities of IPv4 and IPv6 and rely on RSVP for QoS provisioning by network resource reservation. As another example, in operation over intrinsic ATM networks, ECTP will rely on the ATM capabilities for both multicast and QoS.

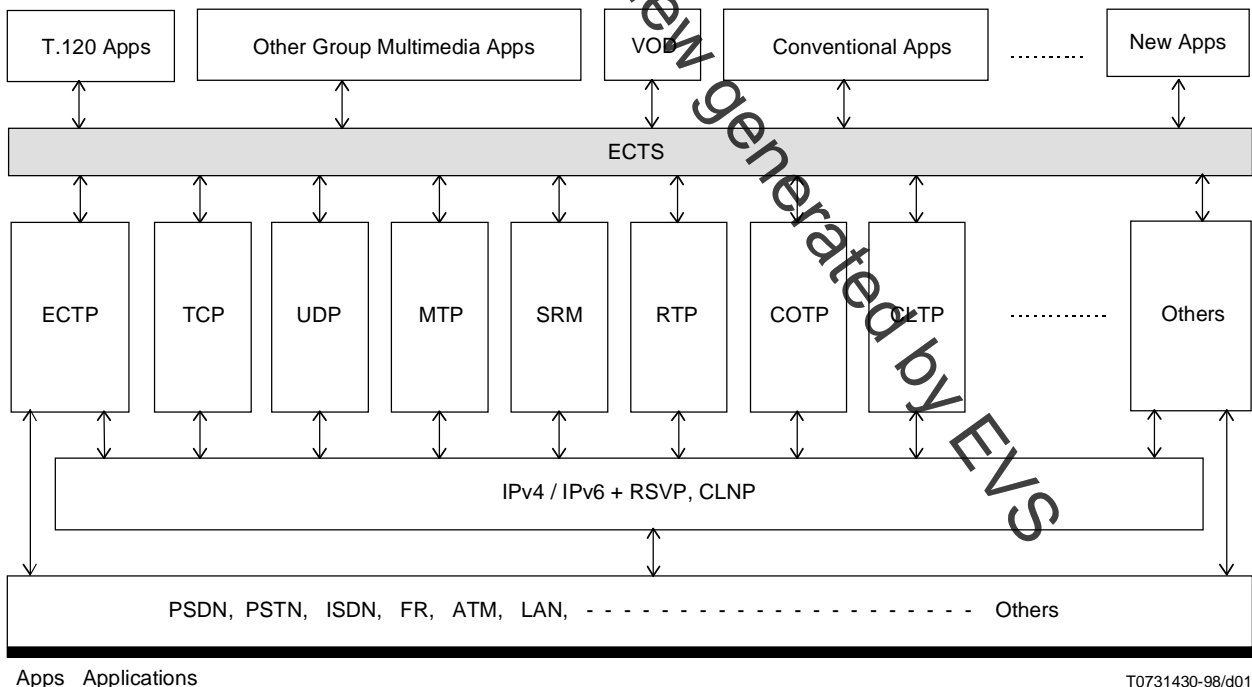


Figure Intro. 1 – Architectural block diagram for ECTS

This document is a preview generated by EVS

INTERNATIONAL STANDARD

ITU-T RECOMMENDATION

**INFORMATION TECHNOLOGY –
ENHANCED COMMUNICATIONS TRANSPORT SERVICE DEFINITION**

1 Scope

This Recommendation | International Standard defines in an abstract way the externally visible service provided by the Transport Layer in terms of:

- a) the primitive actions and events of the service;
- b) the parameter data associated with each primitive action and event;
- c) the relationship between, and the valid sequences of, these actions and events.

The service defined in this Recommendation | International Standard is that which is provided by the Enhanced Communications Transport Protocol (in conjunction with the Network Service) and which may be used by any application protocol. The service can also be provided by other protocols possibly each supporting a subset of the services defined herein.

The primitives specified in this Recommendation | International Standard support a connection-mode service and a connectionless service. In some cases of connectionless-mode service supporting enhanced communications, certain operations may also be necessary prior to the commencement of data transfer, e.g. agreement on quality of service.

For the data transfer phase of either connection-mode or connectionless-mode services, there may be a range of data-ordering characteristics.

No implication is made in this Recommendation | International Standard regarding the inclusion or exclusion of any of the above characteristics given the service primitives specified herein.

2 Normative references

The following Recommendations and International Standards contain provisions which, through reference in this text, constitute provisions of this Recommendation | International Standard. At the time of publication, the editions indicated were valid. All Recommendations and Standards are subject to revision, and parties to agreements based on this Recommendation | International Standard are encouraged to investigate the possibility of applying the most recent edition of the Recommendations and Standards listed below. Members of IEC and ISO maintain registers of currently valid International Standards. The Telecommunication Standardization Bureau of the ITU maintains a list of currently valid ITU-T Recommendations.

2.1 Identical Recommendations | International Standards

- ITU-T Recommendation X.200 (1994) | ISO/IEC 7498-1:1994, *Information technology – Open Systems Interconnection - Basic Reference Model: The Basic Model*.
- ITU-T Recommendation X.210 (1993) | ISO/IEC 10731:1994, *Information technology – Open Systems Interconnection – Basic Reference Model: Conventions for the definition of OSI services*.
- ITU-T Recommendation X.214 (1995) | ISO/IEC 8072:1996, *Information technology – Open Systems Interconnection – Transport service definition*.
- ITU-T Recommendation X.641 (1997) | ISO/IEC 13236:1998, *Information technology – Quality of Service: Framework*.
- ITU-T Recommendation X.802 (1995) | ISO/IEC TR 13594:1995, *Information technology – Lower layers security model*.