INTERNATIONAL STANDARD

ISO/IEC 14476-5

First edition
2008-04-15

Information technology — Enhanced communications transport protocol: Specification of N-plex multicast transport

Technologies de l'information — Protocole de transport de communications amélioré: Spécification pour le transport N-plex en multidiffusion

Reference number
ISO/IEC 14476-5:2008(E)

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Published in Switzerland

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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.

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The main task of the joint technical committee is to prepare International Standards. 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.

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.

ISO/IEC 14476-5 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 Rec. X.608 (02/2007).

ISO/IEC 14476 consists of the following parts, under the general title *Information technology — Enhanced communications transport protocol*:

— *Part 1: Specification of simplex multicast transport*

— *Part 2: Specification of QoS management for simplex multicast transport*

— *Part 3: Specification of duplex multicast transport*

— *Part 5: Specification of N-plex multicast transport*

Introduction

ECTP is designed to support tightly controlled multicast connections in simplex, duplex and N-plex applications. This part of ECTP (Part 5: ITU-T Rec. X.608 | ISO/IEC 14476-5) specifies the protocol mechanisms for the N-plex multicast data transport.

In the N-plex multicast connection, the participants include one TC-Owner and many TS-users. TC-Owner will be designated among the TS-users before the connection begins. TC-Owner is at the heart of multicast group communications. It is responsible for overall connection management by governing the connection creation and termination, multicast data transport, and the late join and leave operations.

In the N-plex multicast connection, the multicast data transmissions are allowed by TS-users as well as TC-Owner. Each TS-user is allowed to send multicast data to the group only if it gets a token from the TC-Owner. That is, the multicast data transmissions of TS-users are controlled by TC-Owner.

The N-plex multicast connection specified in this Recommendation | International Standard targets the many-to-many multicast applications in which many participants (TS-users) may want to transmit the multicast data to all the other TS-users. Typical examples of such applications include 'teleconferencing' and 'multi-users on-line game', etc. In the teleconferencing application, TC-Owner may act as a 'conferencing server', and all the other participants (TS-users) may send multicast data, such as voice, text and image, to the other participants.

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1 Scope

This Recommendation | International Standard specifies the N-plex multicast transport connection in which all participants are TS-users and one of them is TC-Owner. The N-plex multicast transport connection allows TS-users to send the multicast data to all the group members. It is noted that a TS-user is allowed to send the multicast data to the group, only if it gets a token from TC-Owner.

This Specification describes the protocol for supporting the N-plex multicast transport, which includes the connection management (establishment, termination, user join and leave) and the reliability control mechanisms for the multicast data transport.

2 References

2.1 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.

- ITU-T Recommendation X.601 (2000), *Multi-peer communications framework*.
- ITU-T Recommendation X.602 (2004) | ISO/IEC 16513:2005, *Information technology – Group management protocol*.
- ITU-T Recommendation X.605 (1998) | ISO/IEC 13252:1999, *Information technology – Enhanced communications transport service definition*.
- ITU-T Recommendation X.606 (2001) | ISO/IEC 14476-1:2002, *Information technology – Enhanced communications transport protocol: Specification of simplex multicast transport*.
- ITU-T Recommendation X.606.1 (2003) | ISO/IEC 14476-2:2003, *Information technology – Enhanced communications transport protocol: Specification of QoS management for simplex multicast transport*.
- ITU-T Recommendation X.607 (2007) | ISO/IEC 14476-3:2008, *Information technology – Enhanced communications transport protocol: Specification of duplex multicast transport*.

2.2 Informative references

- ITU-T Recommendation X.607.1 (draft) | ISO/IEC 14476-4, *Information technology – Enhanced communications transport protocol: Specification of QoS management for duplex multicast transport*.