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Information technology — Telecommunications and information exchange between systems — End System Routeing Information Exchange Protocol for use in conjunction with ISO 8878

AMENDMENT 3: Specification of IS-SNARE interactions

Technologies de l'information — Télécommunications et échange d'information entre systèmes — Protocole d'échange d'information pour le routage d'un système d'extrémité à utiliser conjointement avec l'ISO 8878

AMENDEMENT 3: Spécification des interactions IS-SNARE

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.

Amendment 3 to International Standard ISO/IEC 10030 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology,* Subcommittee 6, *Telecommunications and information exchange between systems.*

Information technology — Telecommunications and information exchange between systems — End System Routeing Information Exchange Protocol for use in conjunction with ISO 8878

AMENDMENT 3: Specification of IS-SNARE interactions

Introduction

Add a new item d) after the first item c) as follows:

"d) How do Intermediate systems discover the reachability of End Systems on the same subnetwork (when direct examination of the NSAP destination address does not provide information about the destination subnetwork address)?"

Change the second item c) to read:

"c) End systems and Intermediate systems using this protocol..."

1   Scope

Paragraph 1, change the full stop to a comma, and add the following sentence:

"...and between an Intermediate system and a Subnetwork Address Resolution Entity."

Add a new item c) as follows:

"c) Intermediate systems which operate ISO/IEC 8208."

4.1   Systems

Add between ES and SNARE the following abbreviation:

"IS   Intermediate system"

4.2   Protocol Data Units

Change the description of the first four PDUs as follows:

"Exy PDU   End/Intermediate System...... Protocol Data Unit",

for xy = CQ, NC, SC, SH, and add a note at the end of the subclause, as follows:

"NOTE — The name of the PDU should not be construed as implying a definition of the PDU's function. For example an ECQ PDU can be transmitted by an IS".

5   Overview of the Protocol

Add a new item c) to the description of the functions of the Configuration Subset as follows:

"c) To enable ISs to obtain, for NAs identifying Network service access points located within End Systems directly attached to the same subnetwork, the SNPA address of these systems."

In the sentence describing the function of the redirection subset, change the full stop to a comma, and add the following:

"and to permit ISs which are attempting to establish a connection to an ES on the subnetwork to be directed to the appropriate SNPA address via which the connection can be established."

Last paragraph of clause 5, last sentence, change the two occurrences of "ES" to "system (ES or IS)".

5.1 The SNARE Function

Add a new paragraph before the note as follows:

"The SNARE also distributes configuration and redirection information to the ISs."

Modify the NOTE, as follows:

"NOTE — A SNARE may also interact with Intermediate systems for the purpose of collecting configuration information but the details of such interactions are outside the scope of this International Standard."

Last paragraph, replace "ES" with "ES (or IS)" and "ESs" with "ESs (or ISs)".

5.2 Overview of Configuration Information

Add a new paragraph at the end of clause as follows:

"An IS also may request information about Network Addresses. In the present context this request will strictly take place within the realm of Single Network Routeing, as defined in ISO/TR 9575, and is thus hierarchically placed under any IS-IS routeing activity. Therefore this request can only occur for Network Addresses corresponding to End Systems directly attached to the subnetwork. However, this protocol contains no provisions to ensure that this is so, and relies instead on the processes effected above it in the routeing hierarchy.

The protocol exchanges begin with the IS establishing an X.25 connection to a SNARE by issuing an X.25 Call Request. When the SNARE accepts the call, the IS may request information about one or several Network Addresses. For each requested Network Address the SNARE supplies details of the SNPA (or SNPAs) of the system at which the Network Address resides. Having received information about one Network Address, the IS can request information about another. When it has all the information it requires, the IS clears the call."

5.3 Overview of Redirection Information

Second paragraph, change "ES" to "ES (or IS)" in the two instances where the term appears.

Third paragraph, change "ES" to "ES (or IS)".

Last paragraph but one, change "ES" to "ES (or IS)".

Last paragraph, change "the ES" to "the ES (or IS)", in the two instances where the term appears.

6.1 Static Conformance Requirements

Add the following precisions for items a) and b) of the requirements to be met by an ES:

"a) The procedures of the system Configuration Information Subset, specified in clause 8, that apply to an ES;

b) The procedures of the system Redirection Information Subset, specified in clause 9, that apply to an ES."

Add after the requirements for an ES and before the requirements for a SNARE, a paragraph regarding the requirements for an IS, as follows.

"An IS for which conformance to this International Standard is claimed shall implement one or more of the following:

a) The procedures of the system Configuration Information Subset, specified in clause 8, that apply to an IS, in particular clause 8.2.3.3;

b) The procedures of the system Redirection Information Subset, specified in clause 9, that apply to an IS."

7 SNARE Subnetwork Address

Change "an ES" to "an ES (or an IS)".

8 End System Configuration Information Subset

Change the title to:

"System Configuration Information"

8.1 Protocol Parameters

8.1.1 Response Time

Change "ES" to "ES (or IS)".

8.2 Protocol Operation

8.2.1 Connection Establishment

Replace the first two paragraphs with the following:

"An ES (or an IS) shall attempt to establish a connection whenever it needs to obtain Configuration Information from a SNARE.

In addition, an ES shall attempt to establish connection to a SNARE when the conditions specified in 8.1.3 make it necessary to notify configuration information to the SNARE.

However, neither an ES nor an IS shall attempt to establish a connection that have already a connection established or being established for the use for configuration information, and neither an ES nor an IS shall attempt to establish more than one connection to SNAREs from any one system SNPA at any one time."

Change, in the remainder of 8.2.1, "ES" to "ES (or IS)".

8.2.2 Connection Establishment Failure Procedure

In the first paragraph, change "ES" to "ES (or IS)".

Redesignate item a) as item b).

In item b), replace "ES" with "ES (or IS)" and redesignate it as item a).

8.2.3 Data Transfer Procedure

Change "ES" to "ES (or IS)" throughout.

8.2.3.2 Configuration Collection

Change the title to:

"Configuration Collection by End Systems"

Add a new subclause 8.2.3.3 as follows:

"8.2.3.3 Configuration Collection by Intermediate systems

The configuration collection procedure is an optional procedure and, when implemented, its operation is applicable whenever the IS requires to obtain information from a SNARE about the SNPAs of End systems directly attached to the same subnetwork at which are located certain Network Addresses. This International Standard does not impose any constraints on how often an IS attempts to collect configuration information.

The IS shall transmit an ECQ PDU specifying a Network Address for which it requires information. Because of the hierarchical fashion after which routeing is organized within OSI, this request takes place under the umbrella of an IS-ES exchange. Therefore the SCR PDUs that the IS may receive in response from the SNARE can only contain information on SNPAs of End Systems directly attached to the subnetwork. The

SNPA correspond to system at which the NSAPs are located. The SCR PDU may include an Address Mask parameter, and a SNPA Mask parameter which may be used as described in 10.1 and 10.2 respectively."

The remainder of the new subclause is identical to the end of 8.2.3.2 starting with the third paragraph of 8.2.3.2 ("The receipt of an SCC PDU...").

Add a NOTE at the end of the new subclause as follows:

"NOTE — A procedure identical to the Configuration Collection procedure could conceivably be used by an IS-IS protocol. It is not within the scope of this document to discuss this matter."

8.2.4 Failed Connection Procedure

In the NOTE, change "the ES" to "the system (ES or IS)".

8.3 Normal Completion Procedure

In the first paragraph, change the two occurrences of "ES" to "system (ES or IS)".

In item b), change the two occurrences of "ES" to "system (ES or IS)".

In the last paragraph, change "ES" to "system".

8.4 Use of Configuration Information

Add an introductory paragraph as follows:

"This clause applies identically to End Systems and to Intermediate systems."

Change "ES" to "system" in the remainder of the subclause.

9 End System Redirection Information Subset

Change the title to:

"System Redirection Information Subset"

Add a paragraph before 9.1, as follows.

"Except where noted, the Redirection Information Subset applies indifferently to End Systems or Intermediate systems."

Throughout clause 9, change "ES" to "system", except where otherwise indicated as follows.

Detailed changes related to differences in treatment of the ES/IS cases.

— leave second paragraph unchanged;

— add a new paragraph after the second, as follows:

"In order to invoke Redirection, the IS acts similarly, except that it is the ISO 10028 Network Internal Connection establishment that is proceeded according to ISO 10177.";

— modify the last paragraph of the clause, as follows:

Remove the full stop and add the following phrase:

"...and the IS in accordance with ISO 10177".

9.2.1 Redirect Information Procedure for Clear Indications

In the first paragraph, replace "ES" with "system (ES or IS)".

Change the third paragraph as follows:

Delete the final full stop and add the phrase:

"...[in ISO 8878] if the system is an ES, in ISO 10177 if the system is an IS."

Fourth paragraph, second sentence, delete the final full stop and add the following:

"...and the IS those specified in 10177."

Last paragraph but one, last sentence, delete the full stop and add the following:

"...or ISO 10177 as applicable."

9.2.2 Recommended Processing of Call Connected Packets

Add an introductory paragraph to the clause, as follows:

"The recommendation below applies to both ESs and ISs using the protocols defined by this International Standard."

Change every occurrence of "ES" to "system", "an ES" to "a system", and "An ES" to "A system".

9.3 Use of Redirection Information

Reword the beginning of this clause as follows:

"This International Standard does not impose any constraints on how much of the Redirection Information obtained by ESs and ISs is retained or used. A system may discard information received at any time, and invoke redirection information again for subsequent connections.

A system, ES or IS, may at any time use local knowledge or any other method for determining the SNPA to be used in establishing any Network Connection to any Network Address, regardless of whether it has received redirection information which would be applicable.

Moreover information obtained by systems under this protocol may be used by these systems according to procedures not covered by this International Standard.

Under the scope of this protocol, the redirection information is valid only subject to the following restrictions."

The rest of the text of the clause remains unchanged.

10 Address and SNPA Masks

Change "An ES" to "A system (ES or IS)".

10.1 Address Mask

In the last sentence of the first paragraph, delete the word "End" in "End System".

10.2 SNPA Mask

Last paragraph of the subclause, change the three occurrences of "ES" to "system (ES or IS)".

11.1.1.1 Request Time

Change "ES" to "system (ES or IS)".

11.1.2 Configuration Information Procedure

Fourth paragraph, change "calling ES" into "calling system".

Fifth paragraph, last sentence, change "an ES" to "a system".