INTERNATIONAL TELECOMMUNICATION UNION

ITU-T G.7041/Y.1303

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

Amendment 1
(10/2004)

SERIES G: TRANSMISSION SYSTEMS AND MEDIA, DIGITAL SYSTEMS AND NETWORKS

Digital terminal equipments – General

SERIES Y: GLOBAL INFORMATION INFRASTRUCTURE, INTERNET PROTOCOL ASPECTS AND NEXT-GENERATION NETWORKS

Internet protocol aspects – Transport

Generic framing procedure (GFP)

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ITU-T Recommendation G.7041/Y.1303 (2003) – Amendment 1

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ITU-T Recommendation G.7041/Y.1303

Generic framing procedure (GFP)

Amendment 1

Source

Amendment 1 to ITU-T Recommendation G.7041/Y.1303 (2003) was approved on 7 October 2004 by ITU-T Study Group 15 (2001-2004) under the ITU-T Recommendation A.8 procedure.

FOREWORD

The International Telecommunication Union (ITU) is the United Nations specialized agency in the field of telecommunications. The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of ITU. ITU-T is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

The World Telecommunication Standardization Assembly (WTSA), which meets every four years, establishes the topics for study by the ITU-T study groups which, in turn, produce Recommendations on these topics.

The approval of ITU-T Recommendations is covered by the procedure laid down in WTSA Resolution 1.

In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

NOTE

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

Compliance with this Recommendation is voluntary. However, the Recommendation may contain certain mandatory provisions (to ensure e.g. interoperability or applicability) and compliance with the Recommendation is achieved when all of these mandatory provisions are met. The words "shall" or some other obligatory language such as "must" and the negative equivalents are used to express requirements. The use of such words does not suggest that compliance with the Recommendation is required of any party.

INTELLECTUAL PROPERTY RIGHTS

ITU draws attention to the possibility that the practice or implementation of this Recommendation may involve the use of a claimed Intellectual Property Right. ITU takes no position concerning the evidence, validity or applicability of claimed Intellectual Property Rights, whether asserted by ITU members or others outside of the Recommendation development process.

As of the date of approval of this Recommendation, ITU had received notice of intellectual property, protected by patents, which may be required to implement this Recommendation. However, implementors are cautioned that this may not represent the latest information and are therefore strongly urged to consult the TSB patent database.

CONTENTS

ITU-T Recommendation G.7041/Y.1303

Generic framing procedure (GFP)

Amendment 1

1) Clause 2

Add the following references:

– ITU-T Recommendation G.8021/Y.1341 (2004), *Characteristics of Ethernet transport network equipment functional blocks*.

– ITU-T Recommendation G.8040/Y.1340 (2004), *GFP frame mapping into plesiochronous digital hierarchy (PDH).*

2) Clause 6

Change the title of clause 6 to read:

6 Aspects common to both Frame-mapped and Transparent-mapped modes of GFP

3) Table 6-3

Modify Table 6-3 as follows in order to assign a UPI code for a direct MPLS mapping into GFP-F:

Table 6-3/G.7041/Y.1303 – User payload identifiers for GFP client frames

PTI = 000	
Type bits <7:0>	**GFP frame payload area**
0000 0000 1111 1111	Reserved and not available
0000 0001	Frame-Mapped Ethernet
0000 0010	Frame-Mapped PPP
0000 0011	Transparent Fibre Channel
0000 0100	Transparent FICON
0000 0101	Transparent ESCON
0000 0110	Transparent Gb Ethernet
0000 0111	Reserved for future
0000 1000	Frame-Mapped Multiple Access Protocol over SDH (MAPOS)
0000 1001	Transparent DVB ASI
0000 1010	Framed-Mapped IEEE 802.17 Resilient Packet Ring
0000 1011	Frame-Mapped Fibre Channel FC-BBW
0000 1100	Asynchronous Transparent Fibre Channel
0000 1101	Frame-Mapped MPLS (direct mapping)

Table 6-3/G.7041/Y.1303 – User payload identifiers for GFP client frames

PTI = 000	
Type bits <7:0>	**GFP frame payload area**
~~0000 1101~~ 0000 1110 through 1110 1111	Reserved for future standardization
1111 0000 through 1111 1110	Reserved for proprietary use (Note)
NOTE – The use of proprietary code values is described in Annex A/G.806.	

4) Table 6-4

Modify Table 6-4 as follows in order to reserve UPI codes for CMFs:

Table 6-4/G.7041/Y.1303 – GFP client management frame user payload identifier

PTI = 100	
UPI value	**Usage**
0000 0000 1111 1111	Reserved
0000 0001	Client Signal Fail (Loss of Client Signal)
0000 0010	Client Signal Fail (Loss of Character Synchronization)
0000 0011 through ~~1111 1110~~ 1101 1111	Reserved for future use
1110 0000 through 1111 1110	Reserved for proprietary use (Note)
NOTE – The use of proprietary code values is described in Annex A/G.806.	

5) New clause 7.4.1

Add new clause 7.4.1:

7.4.1 Client-specific signal fail aspects

When frame-mapped GFP source adaptation process detects a client signal failure at ingress, the preferred action is to output the appropriate Client Signal Fail AIS if available.

In the case where no client signal AIS is available, it is possible to generate a CMF[csf] at the GFP-F source adaptation process, which may send a "Client Signal Fail" indication as described in 6.3.3. Other implementation-dependent indications of a failed client signal (e.g., loss-of-clock from an interface between integrated circuits) may be encoded as Client Signal Fail.

NOTE – For further details of processing this signal and consequent action, refer to ITU-T Recs G.8021/Y.1341 and G.806.

6) New clause 7.6

Add new clause 7.6:

7.6 Direct mapping of unicast MPLS into GFP-F frames

The unicast MPLS PDU frame contains one or more MPLS-specific label stack entries (as specified in RFC 3032) and a MPLS payload information field. All octets in the unicast MPLS PDU are placed in the Payload Information field of a GFP-F frame. Both octet-alignment and bit identification within octets are maintained within the GFP-F PDU. This direct mapping of unicast MPLS into GFP is intended to be the default mapping when unicast MPLS client signals are directly carried over a transport network.

The GFP Payload FCS is required and is computed as specified in 6.1.2.2.1.1 and inserted in the pFCS field. The PFI field is set to 1.

This relationship between unicast MPLS PDU and GFP-F frame is illustrated in Figure 7-y.

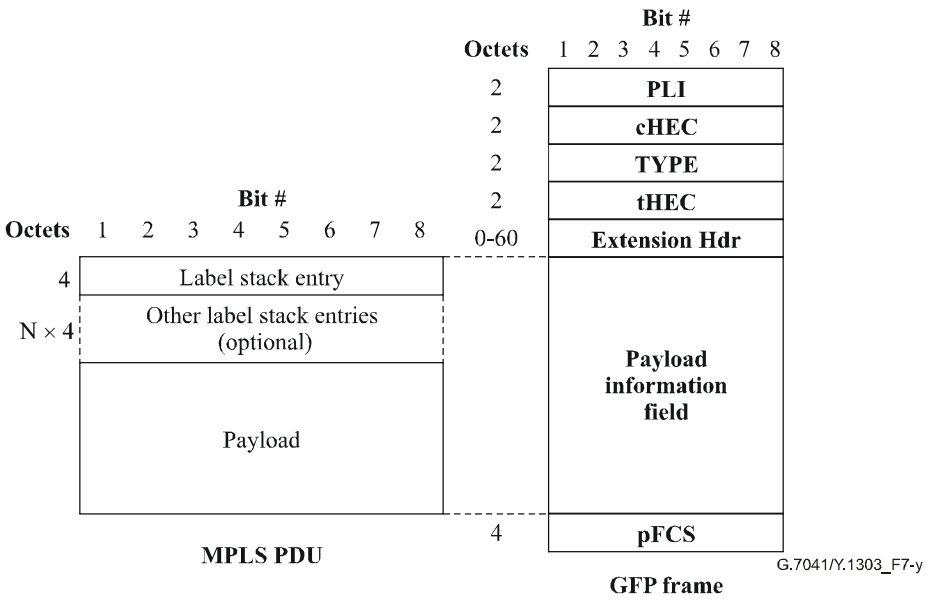

Figure 7-y/G.7041/Y.1303 – Unicast MPLS and GFP frame relationships

NOTE 1 – This mapping allows only for the transport of MPLS encapsulated information. Treatment of MPLS control plane traffic which can be transported using IP without MPLS encapsulation is out of the scope of this clause.

NOTE 2 – The mapping of multicast MPLS PDU frames is for further study.

7) Appendix III

Place the existing contents of Appendix III under the heading:

"III.1 Worked example for a GFP-F frame"

Insert a new clause, III.2, at the end of Appendix III containing the following:

III.2 Worked example for a GFP-T superblock CRC calculation

This clause provides a worked example calculation of the CRC-16 for a GFP-T superblock. For this example, the first octet of the superblock (octet 1,1) contains the value 80 hex (i.e., a 1 in the MSB position), and all other octets in the superblock, including the L-bit octet, contain all 0s. The resulting CRC-16 value will be 1001 1010 1010 0010 (9AA2 hex) in bits CRC-1-CRC-16, respectively.

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