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This document provides Draft Amendment 1 to G.8131/Y.1382 (2014) (latest draft)

This Draft Amendment is prepared based on the text provided in the following contributions of meetings:

- SG15 Plenary, Geneva, 24 November 2014

  ➢ C 791, "Format of APC specific information in G.8131",

  ➢ C 920, "Proposal of Configuration Management for G.8131"

- Q9 Interim, Ottawa, 2 March, 2015

  ➢ WD 05, "Support for MPLS-TP PW Linear Protection in G.8131"

  ➢ WD 17, "Comments on the draft Amendment 1 to G.8131"

  ➢ WD 18, "Further Consideration on MPLS-TP Linear protection architecture"

- SG15 Plenary, Geneva, 22 June 2015

  ➢ C 1404, "Review comments on draft G.8131 Amd1"

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Draft Amendment 1 to Recommendation ITU-T G.8131/Y.1382 (2014)

Linear protection switching for MPLS transport profile:
Amendment 1

Summary

Amendment 1 to Recommendation ITU-T G.8131/Y.1382 (2014) provides:

- Format of APC specific information.

- Descriptions about management information (MI) signals.

- Descriptions on trail protection architecture.

Draft Amendment 1 to Recommendation ITU-T G.8131/Y.1382 (2014)

Linear protection switching for MPLS transport profile:
Amendment 1

1)   Scope

This amendment provides format of APC specific information and descriptions about management (MI) signals and trail protection architecture.

2)   Text modifications to Recommendation ITU-T G.8131/Y.1382 (2014)

2.1)   Clause 6, Protection architecture and characteristics

Replace the following paragraph in clause 6:

The MPLS-TP linear protection switching architecture is subnetwork connection protection with sublayer monitoring (SNC/S) protection as defined in [ITU-T G.808.1]. MPLS-TP trail protection is also supported but the functional model is for further study. Other types are for further study.

With:

This version of the Recommendations describes the MPLS-TP subnetwork connection protection with sublayer monitoring (SNC/S) protection architecture for both LSP and PW sub-layers. It also supports MPLS-TP trail protection architecture for LSP sublayer. Other types (e.g., trail protection for the PW sub-layer) are for further study.

Change the structure of existing sub-clause 6.1 as follows:

-      *Add the following sub-clause above existing sub-clause 6.1:*

       6.1 MPLS-TP protection architecture

-      *Replace* **6.1 MPLS-TP SNC protection** *with* **6.1.1 MPLS-TP SNC protection**

-      *Replace* **6.1.1 SNC/S protection** *with* **6.1.1.1 SNC/S protection**

Add the following sub-clause:

6.1.2   MPLS-TP trail protection

MPLS-TP trail protection is used to protect a MPLS-TP trail within an operator's network or multiple operators' networks. It is a dedicated end-to-end protection architecture. The MT trail termination functions generate/insert and monitor/extract the end-to-end MPLS-TP OAM information to determine the status of the working and protection transport entities. See also [ITU-T G.8110.1]. APC information is transported over the protection trail except for the case of 1+1 unidirectional switching without APC communication.

The details of the atomic functions for APC processing are described in [ITU-T G.8121]

2.2)   Clause 6.3, Operation types

Add the following sentence at the end of clause 6.3:

Revertive/non-revertive operation of the protection switching process shall be configured via MT_C_MI_PS_OperType (for SNC/S) or via MTp_C_MI_PS_OperType (for trail protection).

2.3)   Clause 8.1, Automatic protection coordination specific information structure

Replace the following bullet item text in the fifth paragraph in clause 8.1:

• Capabilities TLV Type: The value of this field is TBD.

With:

• Capabilities TLV Type: The value of this field is 1.

2.4)   Clause 8.1.2, Protection type

Add the following text at the end of clause 8.1.2:

The Protection Type of the protection switching process shall be configured via MT_C_MI_PS_ProtType (for SNC/S) or via MTp_C_MI_PS_ProtType (for trail protection). Either 1+1 or 1:1 switching type can be supported in linear protection, and the bridge type may be a selector bridge or a permanent bridge.

The valid configurations of the MI_PS_ProtType are specified in Table 8-2:

Table 8-2 – Valid configurations of the protection type

MI_PS_ProtType	Protection Type Valid configuration	PT Value
1_PLUS_1_UNIDIRECTIONAL_NO_APS	1+1 unidirectional, no APC communication	See Note 1
1_PLUS_1_UNIDIRECTIONAL_WITH_APS	1+1 unidirectional w/APC communication	1
1_PLUS_1_BIDIRECTIONAL_WITH_APS	1+1 bidirectional w/APC communication	3
1_FOR_1_BIDIRECTIONAL_WITH_APS	1:1 bidirectional w/APC communication	2

Note 1: In case of 1+1 unidirectional with no APC communication, APC messages are not exchanged, so there is no PT value assigned.

2.5)   Clause 8.4, APC protocol type

Due to the insertion of a new table (Table 8-2), existing tables need to be renumbered. Replace all occurrences of the following text in clause 8.4:

Table 8-2

With:

Table 8-3

2.6)   Clause 8.10, Acceptance and retention of local requests

Add the following sentence at the end of clause 8.10:

Each external command shall be input to the protection switching process via MT_C_MI_PS_ExtCMD (for SNC/S) or via MTp_C_MI_PS_ExtCMD (for trail protection).

2.7)   Clause 8.11, Hold-off timer

Add the following sentence at the end of clause 8.11:

The hold-off timer of the protection switching process shall be configured via
MT_C_MI_PS_HoTime (for SNC/S) or via MTp_C_MI_PS_HoTime (for trail protection).

2.8)   Clause 8.12, Wait-to-restore timer

Add the following sentence at the end of clause 8.12:

The wait-to-restore timer of the protection switching process shall be configured via
MT_C_MI_PS_WTR (for SNC/S) or via MTp_C_MI_PS_WTR (for trail protection).

2.9)   Clause 9, Application architectures

Add the following sentence at the beginning of clause 9:

Working and protection transport entities for the protection switching process shall be configured
via MT_C_MI_PS_WorkingPortId and MT_C_MI_PS_ProtectionPortId (for SNC/S) or via
MTp_C_MI_PS_WorkingPortId and MTp_C_MI_PS_ProtectionPortId (for trail protection).

2.10)   Clause 9.3, Bidirectional 1:1 SNC/S protection switching

Add the following text at the end of clause 9.3:

The ability of the protection switching process to trigger protection switching upon SD shall be
configured via MT_C_MI_PS_SD_Protection (for SNC/S) or via MTp_C_MI_PS_SD_Protection
(for trail protection). MI_PS_SD_Protection accepts the values enabled and disabled. The default
value of MI_PS_SD_Protection shall be disabled.

NOTE – MT_C_MI_PS_SD_Protection and MTp_C_MI_PS_SD_Protection are recommended to
be set to enabled only when both ends can trigger protection switching upon SD. If SD capability is
unknown at the far end then it is expected that the operator would set the
MT_C_MI_PS_SD_Protection or the MTp_C_MI_PS_SD_Protection to disabled at the local end.

2.11) Add new Appendix II

Add the following text after Appendix I:

Appendix II

Format of APC specific information

(This appendix does not form an integral part of this Recommendation.)

For the convenience of the reader, Figure 2 of [IETF RFC 6378] and Figure 1 of [IETF RFC 7271] are bound, and the format of the APC specific information with ACH is shown in Figure II.1.

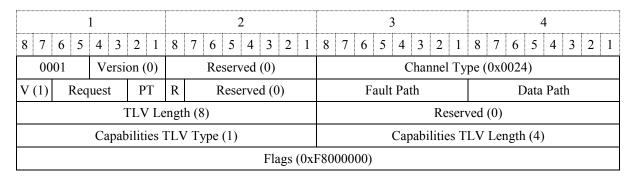| 1								2								3								4							
8	7	6	5	4	3	2	1	8	7	6	5	4	3	2	1	8	7	6	5	4	3	2	1	8	7	6	5	4	3	2	1
0001				Version (0)				Reserved (0)								Channel Type (0x0024)															
V (1)		Request			PT		R		Reserved (0)							Fault Path								Data Path							
TLV Length (8)																Reserved (0)															
Capabilities TLV Type (1)																Capabilities TLV Length (4)															
Flags (0xF8000000)																															

Figure II.1 – Format of APC specific information over G-ACh

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