
Question(s): 12/15

Geneva, 31 May - 11 June 2010

TEMPORARY DOCUMENT**Source:** Editor G.8110.1**Title:** A.5 justification information for draft revised G.8110.1/Y.1370.1

1 Introduction

According to ITU procedures, as described in [ITU-T Recommendation A.5](#), any normative reference to documentation produced outside the ITU (other than ISO and IEC texts) needs to be evaluated by the study group or working party before a decision is made to incorporate the reference in an ITU-T Recommendation.

This TD contains the A.5 justification information for revised G.8110.1/Y.1370.1.

2 Referred documents and respective justifications

- IETF Internet Draft [draft-ietf-mpls-tp-data-plane](#) : MPLS Transport Profile Data Plane Architecture
 - [The Internet-Draft is under IETF Last Call](#)
 - G.8110.1 refers the MPLS-TP data plane architecture as defined in [draft-ietf-mpls-tp-data-plane](#)
 - Complete A.5 justification information can be found in [Annex 1](#).
- IETF [Internet Draft draft-ietf-mpls-tp-framework](#) (: A Framework for MPLS in Transport Networks
 - The referred RFC was approved by IESG (Internet Engineering Steering Group).
 - G.8110.1 refers to the MPLS-TP Architecture as defined in [draft-ietf-mpls-tp-framework](#)
 - Complete A.5 justification information can be found in [Annex 2](#).
- IETF Internet Draft [draft-ietf-mpls-tp-identifiers](#): MPLS-TP Identifiers
 - [The Internet-Draft is an MPLS WG draft](#)
 - G.8110.1 refers to the MPLS-TP Identifiers as defined in [draft-ietf-mpls-tp-identifiers](#)
 - Complete A.5 justification information can be found in [Annex 3](#).
- IETF Internet Draft [draft-ietf-mpls-tp-oam-framework](#): MPLS-TP OAM Framework and Overview

Contact: Italo Busi
Alcatel-Lucent
ItalyTel: +39 039 686 7054
Email: Italo.Busi@alcatel-lucent.com

Attention: This is not a publication made available to the public, but **an internal ITU-T Document** intended only for use by the Member States of ITU, by ITU-T Sector Members and Associates, and their respective staff and collaborators in their ITU related work. It shall not be made available to, and used by, any other persons or entities without the prior written consent of ITU-T.

- **The Internet-Draft is under IESG Processing**
- G.8110.1 refers the MPLS-TP OAM framework as defined in draft-ietf-mpls-tp-oam-framework
- Complete A.5 justification information can be found in [Annex 4](#).
- IETF Internet Draft **draft-ietf-mpls-tp-survive-fwk**: Multiprotocol Label Switching Transport Profile Survivability Framework
 - **The Internet-Draft is under IESG Processing**
 - G.8110.1 refers the MPLS-TP survivability (protection and restoration) framework as defined in draft-ietf-mpls-tp-survive-fwk
 - Complete A.5 justification information can be found in [Annex 5](#).
- IETF RFC 4385 (2006) (*)(*): Pseudowire Emulation Edge-to-Edge (PWE3) Control Word for Use over an MPLS PSN
 - The referred RFC was approved by IESG (Internet Engineering Steering Group).
 - G.8110.1 refers to the PWE3 Control Word definition as specified in RFC 4385
 - Complete A.5 justification information can be found in [Annex 6](#).
- IETF RFC 4448 (2006) (*): Encapsulation Methods for Transport of Ethernet over MPLS Networks
 - The referred RFC was approved by IESG (Internet Engineering Steering Group).
 - G.8110.1 refers to Ethernet PW definition as specified in RFC 4448
 - Complete A.5 justification information can be found in [Annex 7](#).
- IETF RFC 4720 (2006) (*): Pseudowire Emulation Edge-to-Edge (PWE3) “ Frame Check Sequence Retention
 - The referred RFC was approved by IESG (Internet Engineering Steering Group).
 - G.8110.1 specifies PWE3 FCS retention as defined in RFC 4720
 - Complete A.5 justification information can be found in [Annex 8](#).
- IETF RFC 4875 (2007) (*): Extensions to Resource Reservation Protocol - Traffic Engineering (RSVP-TE) for Point-to-Multipoint TE Label Switched Paths (LSPs)
 - The referred RFC was approved by IESG (Internet Engineering Steering Group).
 - G.8110.1 refers to the data plane aspects of p2mp LSP as defined in RFC 4875
 - Complete A.5 justification information can be found in [Annex 9](#).
- IETF RFC 5331 (2008) (*)(*): MPLS Upstream Label Assignment and Context-Specific Label Space
 - The referred RFC was approved by IESG (Internet Engineering Steering Group).
 - G.8110.1 refers the MPLS upstream label assignment and context-specific label space as specified in RFC 5331
 - Complete A.5 justification information can be found in [Annex 10](#).
- IETF RFC 5332 (2008) (*): MPLS Multicast Encapsulations

- The referred RFC was approved by IESG (Internet Engineering Steering Group).
 - G.8110.1 refers the MPLS multicast encapsulations as specified in RFC 5332
 - Complete A.5 justification information can be found in [Annex 11](#).
- IETF RFC 5462 (2009) (*): Multiprotocol Label Switching (MPLS) Label Stack Entry: "EXP" Field Renamed to "Traffic Class" Field
- The referred RFC was approved by IESG (Internet Engineering Steering Group) with ITU-T support.
 - G.8110.1 refers to the TC field as defined in RFC 5462
 - Complete A.5 justification information can be found in [Annex 12](#).
- IETF RFC 5586 (2009) (*): MPLS Generic Associated Channel
- The referred RFC was approved by IESG (Internet Engineering Steering Group) with ITU-T support.
 - G.8110.1 refers the GAL and G-ACh as defined in RFC 5586.
 - Complete A.5 justification information can be found in [Annex 13](#).
- IETF RFC 5654 (2009) (*): MPLS-TP Requirements
- The referred RFC was approved by IESG (Internet Engineering Steering Group) with ITU-T support.
 - G.8110.1 refers to the MPLS-TP Requirements as defined in RFC 5654
 - Complete A.5 justification information can be found in [Annex 14](#).
- IETF RFC 5718 (2010) (*) (*): An In-Band Data Communication Network For the MPLS Transport Profile
- The referred RFC was approved by IESG (Internet Engineering Steering Group) with ITU-T support.
 - G.8110.1 refers to the MPLS-TP DCN as defined in RFC 5718
 - Complete A.5 justification information can be found in [Annex 15](#).
- IETF RFC 5860 (2010) (*): Requirements for Operations, Administration, and Maintenance (OAM) in MPLS Transport Networks
- The referred RFC was approved by IESG (Internet Engineering Steering Group) with ITU-T support.
 - G.8110.1 refers the MPLS-TP OAM Requirements as defined in RFC 5860
 - Complete A.5 justification information can be found in [Annex 16](#).

Annex 1

A.5 justification information for the reference to IETF Internet Draft draft-ietf-mpls-tp-data-plane

1 Clear description of the referenced document:

IETF Internet Draft draft-ietf-mpls-tp-data-plane : MPLS Transport Profile Data Plane Architecture

2 Status of approval:

The Internet-Draft is under IETF Last Call

3 Justification for the specific reference:

G.8110.1 refers the MPLS-TP data plane architecture as defined in draft-ietf-mpls-tp-data-plane

4 Current information, if any, about IPR issues:

IETF IPR archives at <http://www.ietf.org/ipr.html>

5 Other useful information describing the "Quality" of the document:

The intended status of the referred draft, is "Proposed Standard".

6 The degree of stability or maturity of the document:

The intended status of the referred draft, is "Proposed Standard".

7 Relationship with other existing or emerging documents:

References within the referenced draft are listed under item (8).

8 Any explicit references within that referenced document should also be listed:

Normative References

[RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, March 1997.

[RFC3031] Rosen, E., Viswanathan, A., and R. Callon, "Multiprotocol Label Switching Architecture", RFC 3031, January 2001.

[RFC3032] Rosen, E., Tappan, D., Fedorkow, G., Rekhter, Y., Farinacci, D., Li, T., and A. Conta, "MPLS Label Stack Encoding", RFC 3032, January 2001.

[RFC3209] Awduche, D., Berger, L., Gan, D., Li, T., Srinivasan, V., and G. Swallow, "RSVP-TE: Extensions to RSVP for LSP Tunnels", RFC 3209, December 2001.

[RFC3270] Le Faucheur, F., Wu, L., Davie, B., Davari, S., Vaananen, P., Krishnan, R., Cheval, P., and J. Heinanen, "Multi-Protocol Label Switching (MPLS) Support of Differentiated Services", RFC 3270, May 2002.

[RFC3443] Agarwal, P. and B. Akyol, "Time To Live (TTL) Processing in Multi-Protocol Label Switching (MPLS) Networks", RFC 3443, January 2003.

- [RFC4385] Bryant, S., Swallow, G., Martini, L., and D. McPherson, "Pseudowire Emulation Edge-to-Edge (PWE3) Control Word for Use over an MPLS PSN", RFC 4385, February 2006.
- [RFC4448] Martini, L., Rosen, E., El-Aawar, N., and G. Heron, "Encapsulation Methods for Transport of Ethernet over MPLS Networks", RFC 4448, April 2006.
- [RFC4553] Vainshtein, A. and YJ. Stein, "Structure-Agnostic Time Division Multiplexing (TDM) over Packet (SAToP)", RFC 4553, June 2006.
- [RFC4618] Martini, L., Rosen, E., Heron, G., and A. Malis, "Encapsulation Methods for Transport of PPP/High-Level Data Link Control (HDLC) over MPLS Networks", RFC 4618, September 2006.
- [RFC4619] Martini, L., Kawa, C., and A. Malis, "Encapsulation Methods for Transport of Frame Relay over Multiprotocol Label Switching (MPLS) Networks", RFC 4619, September 2006.
- [RFC4717] Martini, L., Jayakumar, J., Bocci, M., El-Aawar, N., Brayley, J., and G. Koleyni, "Encapsulation Methods for Transport of Asynchronous Transfer Mode (ATM) over MPLS Networks", RFC 4717, December 2006.
- [RFC4816] Malis, A., Martini, L., Brayley, J., and T. Walsh, "Pseudowire Emulation Edge-to-Edge (PWE3) Asynchronous Transfer Mode (ATM) Transparent Cell Transport Service", RFC 4816, February 2007.
- [RFC4842] Malis, A., Pate, P., Cohen, R., and D. Zelig, "Synchronous Optical Network/Synchronous Digital Hierarchy (SONET/SDH) Circuit Emulation over Packet (CEP)", RFC 4842, April 2007.
- [RFC4875] Aggarwal, R., Papadimitriou, D., and S. Yasukawa, "Extensions to Resource Reservation Protocol - Traffic Engineering (RSVP-TE) for Point-to-Multipoint TE Label Switched Paths (LSPs)", RFC 4875, May 2007.
- [RFC5331] Aggarwal, R., Rekhter, Y., and E. Rosen, "MPLS Upstream Label Assignment and Context-Specific Label Space", RFC 5331, August 2008.
- [RFC5332] Eckert, T., Rosen, E., Aggarwal, R., and Y. Rekhter, "MPLS Multicast Encapsulations", RFC 5332, August 2008.
- [RFC5462] Andersson, L. and R. Asati, "Multiprotocol Label Switching (MPLS) Label Stack Entry: "EXP" Field Renamed to "Traffic Class" Field", RFC 5462, February 2009.
- [RFC5586] Bocci, M., Vigoureux, M., and S. Bryant, "MPLS Generic Associated Channel", RFC 5586, June 2009.
- [RFC5654] Niven-Jenkins, B., Brungard, D., Betts, M., Sprecher, N., and S. Ueno, "Requirements of an MPLS Transport Profile", RFC 5654, September 2009.

9 Qualification of ISOC/IETF:

9.1-9.6 Decisions of ITU Council to admit ISOC to participate in the work of the Sector (June 1995 and June 1996).

9.7 The Internet Engineering Steering Group (IESG) is responsible for ongoing maintenance of the RFCs when the need arises. Comments on RFCs and corresponding changes are accommodated through the existing standardization process.

9.8 Each revision of a given RFC has a different RFC number, so no confusion is possible. All RFCs always remain available on-line. An index of RFCs and their status may be found in the IETF archives at <http://www.rfc-editor.org/rfc.html>.

10 Other (for any supplementary information):

Reference should always be made by RFC number (and not by other designations such as STD, BCP, etc.). References should not be made to documents referred to as "Internet Drafts" or to IETF RFCs categorized as Historic or Experimental. Normative references must only be made to IETF RFCs that are Standards Track or to Informational RFCs that have IETF consensus.

Annex 2

A.5 justification information for the reference to IETF Internet Draft draft-ietf-mpls-tp-framework (

1 Clear description of the referenced document:

IETF Internet Draft draft-ietf-mpls-tp-framework (: A Framework for MPLS in Transport Networks

2 Status of approval:

The referred RFC was approved by IESG (Internet Engineering Steering Group).

3 Justification for the specific reference:

G.8110.1 refers to the MPLS-TP Architecture as defined in draft-ietf-mpls-tp-framework

4 Current information, if any, about IPR issues:

IETF IPR archives at <http://www.ietf.org/ipr.html>

5 Other useful information describing the "Quality" of the document:

The status of the referred RFC, is "Informational" with IETF consensus.

6 The degree of stability or maturity of the document:

The status of the referred RFC, is "Informational" with IETF consensus.

7 Relationship with other existing or emerging documents:

References within the referenced RFCs are listed under item (8).

8 Any explicit references within that referenced document should also be listed:

[G.7710] ITU-T Recommendation G.7710/Y.1701 (07/07), "Common equipment management function requirements", 2005.

[G.805] ITU-T Recommendation G.805 (11/95), "Generic Functional Architecture of Transport Networks", November 1995.

[RFC3031] Rosen, E., Viswanathan, A., and R. Callon, "Multiprotocol Label Switching Architecture", RFC 3031, January 2001.

[RFC3032] Rosen, E., Tappan, D., Fedorkow, G., Rekhter, Y., Farinacci, D., Li, T., and A. Conta, "MPLS Label Stack Encoding", RFC 3032, January 2001.

[RFC3270] Le Faucheur, F., Wu, L., Davie, B., Davari, S., Vaananen, P., Krishnan, R., Cheval, P., and J. Heinanen, "Multi-Protocol Label Switching (MPLS) Support of Differentiated Services", RFC 3270, May 2002.

[RFC3473] Berger, L., "Generalized Multi-Protocol Label Switching (GMPLS) Signaling Resource ReserVation Protocol-Traffic Engineering (RSVP-TE) Extensions", RFC 3473, January 2003.

[RFC3985] Bryant, S. and P. Pate, "Pseudo Wire Emulation Edge-to-Edge (PWE3) Architecture", RFC 3985, March 2005.

[RFC4090] Pan, P., Swallow, G., and A. Atlas, "Fast Reroute Extensions to RSVP-TE for LSP Tunnels", RFC 4090, May 2005.

- [RFC4385] Bryant, S., Swallow, G., Martini, L., and D. McPherson, "Pseudowire Emulation Edge-to-Edge (PWE3) Control Word for Use over an MPLS PSN", RFC 4385, February 2006.
- [RFC4447] Martini, L., Rosen, E., El-Aawar, N., Smith, T., and G. Heron, "Pseudowire Setup and Maintenance Using the Label Distribution Protocol (LDP)", RFC 4447, April 2006.
- [RFC4872] Lang, J., Rekhter, Y., and D. Papadimitriou, "RSVP-TE Extensions in Support of End-to-End Generalized Multi-Protocol Label Switching (GMPLS) Recovery", RFC 4872, May 2007.
- [RFC5085] Nadeau, T. and C. Pignataro, "Pseudowire Virtual Circuit Connectivity Verification (VCCV): A Control Channel for Pseudowires", RFC 5085, December 2007.
- [RFC5586] Bocci, M., Vigoureux, M., and S. Bryant, "MPLS Generic Associated Channel", RFC 5586, June 2009.
- [I-D.ietf-mpls-tp-data-plane] Frost, D., Bryant, S., and M. Bocci, "MPLS Transport Profile Data Plane Architecture", draft-ietf-mpls-tp-data-plane-02 (work in progress), April 2010.
- [I-D.ietf-mpls-tp-nm-framework] Mansfield, S., Gray, E., and H. Lam, "MPLS-TP Network Management Framework", draft-ietf-mpls-tp-nm-framework-05 (work in progress), February 2010.
- [I-D.ietf-mpls-tp-nm-req] Mansfield, S. and K. Lam, "MPLS TP Network Management Requirements", draft-ietf-mpls-tp-nm-req-06 (work in progress), October 2009.
- [I-D.ietf-mpls-tp-oam-framework] Allan, D., Busi, I., Niven-Jenkins, B., Fulignoli, A., Hernandez-Valencia, E., Levrau, L., Mohan, D., Sestito, V., Sprecher, N., Helvoort, H., Vigoureux, M., Weingarten, Y., and R. Winter, "MPLS-TP OAM Framework", draft-ietf-mpls-tp-oam-framework-06 (work in progress), April 2010.
- [I-D.ietf-mpls-tp-oam-requirements] Vigoureux, M. and D. Ward, "Requirements for OAM in MPLS Transport Networks", draft-ietf-mpls-tp-oam-requirements-06 (work in progress), March 2010.
- [I-D.ietf-mpls-tp-survive-fwk] Sprecher, N. and A. Farrel, "Multiprotocol Label Switching Transport Profile Survivability Framework", draft-ietf-mpls-tp-survive-fwk-05 (work in progress), April 2010.
- [RFC4364] Rosen, E. and Y. Rekhter, "BGP/MPLS IP Virtual Private Networks (VPNs)", RFC 4364, February 2006.
- [RFC5254] Bitar, N., Bocci, M., and L. Martini, "Requirements for Multi-Segment Pseudowire Emulation Edge-to-Edge (PWE3)", RFC 5254, October 2008.
- [RFC5654] Niven-Jenkins, B., Brungard, D., Betts, M., Sprecher, N., and S. Ueno, "Requirements of an MPLS Transport Profile", RFC 5654, September 2009.
- [RFC5659] Bocci, M. and S. Bryant, "An Architecture for Multi-Segment Pseudowire Emulation Edge-to-Edge", RFC 5659, October 2009.
- [RFC5718] Beller, D. and A. Farrel, "An In-Band Data Communication Network For the MPLS Transport Profile", RFC 5718, January 2010.

9 Qualification of ISOC/IETF:

9.1-9.6 Decisions of ITU Council to admit ISOC to participate in the work of the Sector (June 1995 and June 1996).

9.7 The Internet Engineering Steering Group (IESG) is responsible for ongoing maintenance of the RFCs when the need arises. Comments on RFCs and corresponding changes are accommodated through the existing standardization process.

9.8 Each revision of a given RFC has a different RFC number, so no confusion is possible. All RFCs always remain available on-line. An index of RFCs and their status may be found in the IETF archives at <http://www.rfc-editor.org/rfc.html>.

10 Other (for any supplementary information):

Reference should always be made by RFC number (and not by other designations such as STD, BCP, etc.). References should not be made to documents referred to as "Internet Drafts" or to IETF RFCs categorized as Historic or Experimental. Normative references must only be made to IETF RFCs that are Standards Track or to Informational RFCs that have IETF consensus.

Annex 3

A.5 justification information for the reference to IETF Internet Draft draft-ietf-mpls-tp-identifiers

1 Clear description of the referenced document:

IETF Internet Draft draft-ietf-mpls-tp-identifiers: MPLS-TP Identifiers

2 Status of approval:

The Internet-Draft is an MPLS WG draft

3 Justification for the specific reference:

G.8110.1 refers to the MPLS-TP Identifiers as defined in draft-ietf-mpls-tp-identifiers

4 Current information, if any, about IPR issues:

IETF IPR archives at <http://www.ietf.org/ipr.html>

5 Other useful information describing the "Quality" of the document:

The intended status of the referred draft, is "Proposed Standard"

6 The degree of stability or maturity of the document:

The intended status of the referred draft, is "Proposed Standard"

7 Relationship with other existing or emerging documents:

References within the referenced draft are listed under item (8).

8 Any explicit references within that referenced document should also be listed:

- [1] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, March 1997.
- [2] Awduche, D., Berger, L., Gan, D., Li, T., Srinivasan, V., and G. Swallow, "RSVP-TE: Extensions to RSVP for LSP Tunnels", RFC 3209, December 2001.
- [3] Metz, C., Martini, L., Balus, F., and J. Sugimoto, "Attachment Individual Identifier (AII) Types for Aggregation", RFC 5003, September 2007.
- [4] Berger, L., "Generalized Multi-Protocol Label Switching (GMPLS) Signaling Functional Description", RFC 3471, January 2003.
- [5] Berger, L., "Generalized Multi-Protocol Label Switching (GMPLS) Signaling Resource ReserVation Protocol-Traffic Engineering (RSVP-TE) Extensions", RFC 3473, January 2003.
- [6] Martini, L., Rosen, E., El-Aawar, N., Smith, T., and G. Heron, "Pseudowire Setup and Maintenance Using the Label Distribution Protocol (LDP)", RFC 4447, April 2006.
- [7] Kompella, K., Rekhter, Y., and A. Kullberg, "Signalling Unnumbered Links in CR-LDP (Constraint-Routing Label Distribution Protocol)", RFC 3480, February 2003.
- [8] Kompella, K., Rekhter, Y., and L. Berger, "Link Bundling in MPLS Traffic Engineering (TE)", RFC 4201, October 2005.

- [9] Lang, J., Rekhter, Y., and D. Papadimitriou, "RSVP-TE Extensions in Support of End-to-End Generalized Multi-Protocol Label Switching (GMPLS) Recovery", RFC 4872, May 2007.
- [10] Aggarwal, R., Kompella, K., Nadeau, T., and G. Swallow, "BFD For MPLS LSPs", [draft-ietf-bfd-mpls-07](#) (work in progress), June 2008.
- [11] Nadeau, T. and C. Pignataro, "Bidirectional Forwarding Detection (BFD) for the Pseudowire Virtual Circuit Connectivity Verification (VCCV)", [draft-ietf-pwe3-vccv-bfd-07](#) (work in progress), July 2009.

9 Qualification of ISOC/IETF:

9.1-9.6 Decisions of ITU Council to admit ISOC to participate in the work of the Sector (June 1995 and June 1996).

9.7 The Internet Engineering Steering Group (IESG) is responsible for ongoing maintenance of the RFCs when the need arises. Comments on RFCs and corresponding changes are accommodated through the existing standardization process.

9.8 Each revision of a given RFC has a different RFC number, so no confusion is possible. All RFCs always remain available on-line. An index of RFCs and their status may be found in the IETF archives at <http://www.rfc-editor.org/rfc.html>.

10 Other (for any supplementary information):

Reference should always be made by RFC number (and not by other designations such as STD, BCP, etc.). References should not be made to documents referred to as "Internet Drafts" or to IETF RFCs categorized as Historic or Experimental. Normative references must only be made to IETF RFCs that are Standards Track or to Informational RFCs that have IETF consensus.

Annex 4

A.5 justification information for the reference to IETF Internet Draft draft-ietf-mpls-tp-oam-framework

1 Clear description of the referenced document:

IETF Internet Draft draft-ietf-mpls-tp-oam-framework: MPLS-TP OAM Framework and Overview

2 Status of approval:

The Internet-Draft is under IESG Processing

3 Justification for the specific reference:

G.8110.1 refers the MPLS-TP OAM framework as defined in draft-ietf-mpls-tp-oam-framework

4 Current information, if any, about IPR issues:

IETF IPR archives at <http://www.ietf.org/ipr.html>

5 Other useful information describing the "Quality" of the document:

The intended status of the referred draft, is "Informational" with IETF consensus.

6 The degree of stability or maturity of the document:

The intended status of the referred draft, is "Informational" with IETF consensus.

7 Relationship with other existing or emerging documents:

References within the referenced draft are listed under item (8).

8 Any explicit references within that referenced document should also be listed:

- [1] Rosen, E., Viswanathan, A., Callon, R., "Multiprotocol Label Switching Architecture", RFC 3031, January 2001
- [2] Bryant, S., Pate, P., "Pseudo Wire Emulation Edge-to-Edge (PWE3) Architecture", RFC 3985, March 2005
- [3] Nadeau, T., Pignataro, S., "Pseudowire Virtual Circuit Connectivity Verification (VCCV): A Control Channel for Pseudowires", RFC 5085, December 2007
- [4] Bocci, M., Bryant, S., "An Architecture for Multi-Segment Pseudo Wire Emulation Edge-to-Edge", RFC 5659, October 2009
- [5] Niven-Jenkins, B., Brungard, D., Betts, M., Sprecher, N., Ueno, S., "MPLS-TP Requirements", RFC 5654, September 2009
- [6] Vigoureux, M., Bocci, M., Swallow, G., Ward, D., Aggarwal, R., "MPLS Generic Associated Channel", RFC 5586, June 2009
- [7] Swallow, G., Bocci, M., "MPLS-TP Identifiers", draft-ietf-mpls-tp-identifiers-01 (work in progress), April 2010
- [8] Vigoureux, M., Betts, M., Ward, D., "Requirements for OAM in MPLS Transport Networks", draft-ietf-mpls-tp-oam-requirements-06 (work in progress), March 2010

- [9] ITU-T Recommendation G.806 (01/09), "Characteristics of transport equipment - Description methodology and generic functionality ", January 2009

9 Qualification of ISOC/IETF:

9.1-9.6 Decisions of ITU Council to admit ISOC to participate in the work of the Sector (June 1995 and June 1996).

9.7 The Internet Engineering Steering Group (IESG) is responsible for ongoing maintenance of the RFCs when the need arises. Comments on RFCs and corresponding changes are accommodated through the existing standardization process.

9.8 Each revision of a given RFC has a different RFC number, so no confusion is possible. All RFCs always remain available on-line. An index of RFCs and their status may be found in the IETF archives at <http://www.rfc-editor.org/rfc.html>.

10 Other (for any supplementary information):

Reference should always be made by RFC number (and not by other designations such as STD, BCP, etc.). References should not be made to documents referred to as "Internet Drafts" or to IETF RFCs categorized as Historic or Experimental. Normative references must only be made to IETF RFCs that are Standards Track or to Informational RFCs that have IETF consensus.

Annex 5

A.5 justification information for the reference to IETF Internet Draft draft-ietf-mpls-tp-survive-fwk

1 Clear description of the referenced document:

IETF Internet Draft draft-ietf-mpls-tp-survive-fwk: Multiprotocol Label Switching Transport Profile Survivability Framework

2 Status of approval:

The Internet-Draft is under IESG Processing

3 Justification for the specific reference:

G.8110.1 refers the MPLS-TP survivability (protection and restoration) framework as defined in draft-ietf-mpls-tp-survive-fwk

4 Current information, if any, about IPR issues:

IETF IPR archives at <http://www.ietf.org/ipr.html>

5 Other useful information describing the "Quality" of the document:

The intended status of the referred draft, is "Informational" with IETF consensus.

6 The degree of stability or maturity of the document:

The intended status of the referred draft, is "Informational" with IETF consensus.

7 Relationship with other existing or emerging documents:

References within the referenced draft are listed under item (8).

8 Any explicit references within that referenced document should also be listed:

[RFC2205] Bradner, S., Ed., Zhang, L., Berson, S., Herzog, S., and J. Jamin, "Resource ReserVation Protocol - Version 1 Functional Specification", RFC 2205, September 1997.

[RFC3209] Awduche, D., Berger, L., Gan, D., Li, T., Srinivasan, V., and G. Swallow, "RSVP-TE: Extensions to RSVP for LSP Tunnels", RFC 3209, December 2001.

[RFC3471] Berger, L., Ed., "Generalized Multi-Protocol Label Switching (GMPLS) Signaling Functional Description", RFC 3471, January 2003.

[RFC3473] Berger, L., "Generalized Multi-Protocol Label Switching (GMPLS) Signaling Resource ReserVation Protocol-Traffic Engineering (RSVP-TE) Extensions", RFC 3473, January 2003.

[RFC3945] Mannie, E., "Generalized Multi-Protocol Label Switching(GMPLS) Architecture", RFC 3945, October 2004.

[RFC4203] Kompella, K. and Y. Rekhter, "IS-IS Extensions in Support of Generalized Multi-Protocol Label Switching (GMPLS)", RFC 4203, October 2005.

[RFC4204] Lang, J., Ed., "The Link Management Protocol (LMP)", RFC 4204, September 2005.

- [RFC4427] Mannie, E. and D. Papadimitriou, "Recovery (Protection and Restoration) Terminology for Generalized Multi-Protocol Label Switching (GMPLS)", RFC 4427, March 2006.
- [RFC4428] Papadimitriou, D. and E. Mannie, "Analysis of Generalized Multi-Protocol Label Switching (GMPLS) - based Recovery Mechanisms (including Protection and Restoration) Recovery (Protection and Restoration) Terminology for Generalized Multi-Protocol Label Switching (GMPLS)", RFC 4428, March 2006.
- [RFC4873] Berger, L., Bryskin, I., Papadimitriou, D., and A. Farrel, "GMPLS Segment Recovery", RFC 4873, May 2007.
- [RFC5307] Kompella, K. and Y. Rekhter, "IS-IS Extensions in Support of Generalized Multi-Protocol Label Switching (GMPLS)", RFC 5307, October 2008.
- [RFC5317] Bryant, S. and L. Andersson, "Joint Working Team (JWT) Report on MPLS Architectural Considerations for a Transport Profile", RFC 5317, February 2009.
- [RFC5654] Niven-Jenkins, B., Ed., Brungard, D., Ed., Betts, M., Ed., Sprecher, N., and S. Ueno, "Requirements of an MPLS Transport Profile", RFC 5654, September 2009.
- [RFC5586] Bocci, M., Ed., Vigoureux, M., Ed., and S. Bryant, Ed., "MPLS Generic Associated Channel", RFC 5586, June 2009.
- [G.806] ITU-T, "Characteristics of transport equipment - Description methodology and generic functionality", Recommendation G.806, January 2009.
- [G.808.1] ITU-T, "Generic Protection Switching - Linear trail and subnetwork protection", Recommendation G.808.1, December 2003.
- [G.841] ITU-T, "Types and Characteristics of SDH Network Protection Architectures", Recommendation G.841, October 1998.
- [MPLS-TP-FWK] Bocci, M., Bryant, S., Frost, D., Levrau, L., and Berger, L., "A Framework for MPLS in Transport Networks", [draft-ietf-mpls-tp-framework](#), Work in Progress.
- [MPLS-TP-NM-Framework] Mansfield, S., Gray, E., and Lam, K., "MPLS-TP Network Management Framework", [draft-ietf-mpls-tp-nm-framework](#), Work in Progress.
- [MPLS-TP-OAM-Framework] Buci, I., Ed. and B. Niven-Jenkins, Ed., "A Framework for MPLS in Transport Networks", [draft-ietf-mpls-tp-oam-framework](#), Work in Progress.

9 Qualification of ISOC/IETF:

9.1-9.6 Decisions of ITU Council to admit ISOC to participate in the work of the Sector (June 1995 and June 1996).

9.7 The Internet Engineering Steering Group (IESG) is responsible for ongoing maintenance of the RFCs when the need arises. Comments on RFCs and corresponding changes are accommodated through the existing standardization process.

9.8 Each revision of a given RFC has a different RFC number, so no confusion is possible. All RFCs always remain available on-line. An index of RFCs and their status may be found in the IETF archives at <http://www.rfc-editor.org/rfc.html>.

10 Other (for any supplementary information):

Reference should always be made by RFC number (and not by other designations such as STD, BCP, etc.). References should not be made to documents referred to as "Internet Drafts" or to IETF RFCs categorized as Historic or Experimental. Normative references must only be made to IETF RFCs that are Standards Track or to Informational RFCs that have IETF consensus.

Annex 6

A.5 justification information for the reference to IETF RFC 4385 (2006) (*) (*)

1 Clear description of the referenced document:

IETF RFC 4385 (2006) (*) (*): Pseudowire Emulation Edge-to-Edge (PWE3) Control Word for Use over an MPLS PSN

2 Status of approval:

The referred RFC was approved by IESG (Internet Engineering Steering Group).

3 Justification for the specific reference:

G.8110.1 refers to the PWE3 Control Word definition as specified in RFC 4385

4 Current information, if any, about IPR issues:

IETF IPR archives at <http://www.ietf.org/ipr.html>

5 Other useful information describing the "Quality" of the document:

The status of the referred RFC, is "Proposed Standard".

6 The degree of stability or maturity of the document:

The status of the referred RFC, is "Proposed Standard".

7 Relationship with other existing or emerging documents:

References within the referenced RFCs are listed under item (8).

8 Any explicit references within that referenced document should also be listed:

Normative References

[RFC791] IETF RFC 791 (1981), Internet Protocol

[RFC2119] IETF RFC 2119 (1997), Key words for use in RFCs to Indicate Requirement Levels

[RFC2460] IETF RFC 2460 (1998), Internet Protocol, Version 6 (IPv6) Specification

Informative References

[BCP] IETF RFC work in progress (2005), Avoiding Equal Cost Multipath Treatment in MPLS Networks

[FRAG] IETF RFC work in progress (November 2005), PWE3 Fragmentation and Reassembly

[IANA] IETF RFC work in progress (November 2005), IANA Allocations for Pseudowire Edge to Edge Emulation (PWE3)

[RFC2434] IETF BCP 26, RFC 2434 (1998), Guidelines for Writing an IANA Considerations Section in RFCs

[RFC2992] IETF RFC 2992 (2000), Analysis of an Equal-Cost Multi-Path Algorithm

[RFC3985] IETF RFC 3985 (2005), Pseudo Wire Emulation Edge-to-Edge (PWE3) Architecture

[VCCV] IETF RFC work in progress (2005), Pseudowire Virtual Circuit Connectivity Verification (VCCV)

9 Qualification of ISOC/IETF:

9.1-9.6 Decisions of ITU Council to admit ISOC to participate in the work of the Sector (June 1995 and June 1996).

9.7 The Internet Engineering Steering Group (IESG) is responsible for ongoing maintenance of the RFCs when the need arises. Comments on RFCs and corresponding changes are accommodated through the existing standardization process.

9.8 Each revision of a given RFC has a different RFC number, so no confusion is possible. All RFCs always remain available on-line. An index of RFCs and their status may be found in the IETF archives at <http://www.rfc-editor.org/rfc.html>.

10 Other (for any supplementary information):

Reference should always be made by RFC number (and not by other designations such as STD, BCP, etc.). References should not be made to documents referred to as "Internet Drafts" or to IETF RFCs categorized as Historic or Experimental. Normative references must only be made to IETF RFCs that are Standards Track or to Informational RFCs that have IETF consensus.

Annex 7

A.5 justification information for the reference to IETF RFC 4448 (2006) (*)

1 Clear description of the referenced document:

IETF RFC 4448 (2006) (*): Encapsulation Methods for Transport of Ethernet over MPLS Networks

2 Status of approval:

The referred RFC was approved by IESG (Internet Engineering Steering Group).

3 Justification for the specific reference:

G.8110.1 refers to Ethernet PW definition as specified in RFC 4448

4 Current information, if any, about IPR issues:

IETF IPR archives at <http://www.ietf.org/ipr.html>

5 Other useful information describing the "Quality" of the document:

The status of the referred RFC, is "Proposed Standard".

6 The degree of stability or maturity of the document:

The status of the referred RFC, is "Proposed Standard".

7 Relationship with other existing or emerging documents:

References within the referenced RFC are listed under item (8).

8 Any explicit references within that referenced document should also be listed:

[PWE3-CW] Bryant, S., Swallow, G., and D. McPherson, "Pseudowire Emulation Edge-to-Edge (PWE3) Control Word for Use over an MPLS PSN", RFC 4385, February 2006.

[IANA] Martini, L., "IANA Allocations for Pseudowire Edge to Edge Emulation (PWE3)", BCP 116, RFC 4446, April 2006.

[PWE3-CTRL] Martini, L., El-Aawar, N., Heron, G., Rosen, E., Tappan, D., and T. Smith, "Pseudowire Setup and Maintenance using the Label Distribution Protocol (LDP)", RFC 4447, April 2006.

[MPLS-ARCH] Rosen, E., Viswanathan, A., and R. Callon, "Multiprotocol Label Switching Architecture", RFC 3031, January 2001.

[802.3] IEEE802.3-2005, ISO/IEC 8802-3: 2000 (E), "IEEE Standard for Information technology -- Telecommunications and information exchange between systems -- Local and metropolitan area networks -- Specific requirements -- Part 3: Carrier Sense Multiple Access with Collision Detection (CSMA/CD) Access Method and Physical Layer Specifications", 2005.

[802.1Q] ANSI/IEEE Standard 802.1Q-2005, "IEEE Standards for Local and Metropolitan Area Networks: Virtual Bridged Local Area Networks", 2005.

[PDU] IEEE Std 802.3, 1998 Edition, "Part 3: Carrier sense multiple access with collision detection (CSMA/CD) access method and physical layer specifications" figure 3.1, 1998

[RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, March 1997.

9 Qualification of ISOC/IETF:

9.1-9.6 Decisions of ITU Council to admit ISOC to participate in the work of the Sector (June 1995 and June 1996).

9.7 The Internet Engineering Steering Group (IESG) is responsible for ongoing maintenance of the RFCs when the need arises. Comments on RFCs and corresponding changes are accommodated through the existing standardization process.

9.8 Each revision of a given RFC has a different RFC number, so no confusion is possible. All RFCs always remain available on-line. An index of RFCs and their status may be found in the IETF archives at <http://www.rfc-editor.org/rfc.html>.

10 Other (for any supplementary information):

Reference should always be made by RFC number (and not by other designations such as STD, BCP, etc.). References should not be made to documents referred to as "Internet Drafts" or to IETF RFCs categorized as Historic or Experimental. Normative references must only be made to IETF RFCs that are Standards Track or to Informational RFCs that have IETF consensus.

Annex 8

A.5 justification information for the reference to IETF RFC 4720 (2006) (*)

1 Clear description of the referenced document:

IETF RFC 4720 (2006) (*): Pseudowire Emulation Edge-to-Edge (PWE3) " Frame Check Sequence Retention

2 Status of approval:

The referred RFC was approved by IESG (Internet Engineering Steering Group).

3 Justification for the specific reference:

G.8110.1 specifies PWE3 FCS retention as defined in RFC 4720

4 Current information, if any, about IPR issues:

IETF IPR archives at <http://www.ietf.org/ipr.html>

5 Other useful information describing the "Quality" of the document:

The status of the referred RFC, is "Proposed Standard".

6 The degree of stability or maturity of the document:

The status of the referred RFC, is "Proposed Standard".

7 Relationship with other existing or emerging documents:

References within the referenced RFC are listed under item (8).

8 Any explicit references within that referenced document should also be listed:

- [1] Martini, L., Rosen, E., El-Aawar, N., and G. Heron, "Encapsulation Methods for Transport of Ethernet over MPLS Networks", RFC 4448, April 2006.
- [2] Martini, L., Ed., Kawa, C., Ed., and A. Malis, Ed., "Encapsulation Methods for Transport of Frame Relay over Multiprotocol Label Switching (MPLS) Networks", RFC 4619, September 2006.
- [3] Martini, L., Rosen, E., Heron, G., and A. Malis, "Encapsulation Methods for Transport of PPP/High-Level Data Link Control (HDLC) over MPLS Networks", RFC 4618, September 2006.
- [4] Martini, L., Rosen, E., El-Aawar, N., Smith, T., and G. Heron, "Pseudowire Setup and Maintenance Using the Label Distribution Protocol (LDP)", RFC 4447, April 2006.
- [5] Martini, L., "IANA Allocations for Pseudowire Edge to Edge Emulation (PWE3)", BCP 116, RFC 4446, April 2006.
- [6] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, March 1997.
- [7] Lau, J., Townsley, M., and I. Goyret, "Layer Two Tunneling Protocol - Version 3 (L2TPv3)", RFC 3931, March 2005.
- [8] Townsley, W., "Layer Two Tunneling Protocol (L2TP) Internet Assigned Numbers Authority (IANA) Considerations Update", BCP 68, RFC 3438, December 2002.

- [9] Aggarwal, R., Townsley, M., and M. Dos Santos, "Transport of Ethernet Frames over Layer 2 Tunneling Protocol Version 3 (L2TPv3)", RFC 4719, November 2006.
- [10] Townsley, M., Wilkie, G., Booth, S., Bryant, S., and J. Lau, "Frame Relay over Layer 2 Tunneling Protocol Version 3 (L2TPv3)", RFC 4591, August 2006.
- [11] Pignataro, C. and M. Townsley, "High-Level Data Link Control (HDLC) Frames over Layer 2 Tunneling Protocol, Version 3 (L2TPv3)", RFC 4349, February 2006.

9 Qualification of ISOC/IETF:

9.1-9.6 Decisions of ITU Council to admit ISOC to participate in the work of the Sector (June 1995 and June 1996).

9.7 The Internet Engineering Steering Group (IESG) is responsible for ongoing maintenance of the RFCs when the need arises. Comments on RFCs and corresponding changes are accommodated through the existing standardization process.

9.8 Each revision of a given RFC has a different RFC number, so no confusion is possible. All RFCs always remain available on-line. An index of RFCs and their status may be found in the IETF archives at <http://www.rfc-editor.org/rfc.html>.

10 Other (for any supplementary information):

Reference should always be made by RFC number (and not by other designations such as STD, BCP, etc.). References should not be made to documents referred to as "Internet Drafts" or to IETF RFCs categorized as Historic or Experimental. Normative references must only be made to IETF RFCs that are Standards Track or to Informational RFCs that have IETF consensus.

Annex 9

A.5 justification information for the reference to IETF RFC 4875 (2007) (*)

1 Clear description of the referenced document:

IETF RFC 4875 (2007) (*): Extensions to Resource Reservation Protocol - Traffic Engineering (RSVP-TE) for Point-to-Multipoint TE Label Switched Paths (LSPs)

2 Status of approval:

The referred RFC was approved by IESG (Internet Engineering Steering Group).

3 Justification for the specific reference:

G.8110.1 refers to the data plane aspects of p2mp LSP as defined in RFC 4875

4 Current information, if any, about IPR issues:

IETF IPR archives at <http://www.ietf.org/ipr.html>

5 Other useful information describing the "Quality" of the document:

The status of the referred RFC, is "Proposed Standard".

6 The degree of stability or maturity of the document:

The status of the referred RFC, is "Proposed Standard".

7 Relationship with other existing or emerging documents:

References within the referenced RFC are listed under item (8).

8 Any explicit references within that referenced document should also be listed:

[RFC4206] Kompella, K. and Y. Rekhter, "Label Switched Paths (LSP) Hierarchy with Generalized Multi-Protocol Label Switching (GMPLS) Traffic Engineering (TE)", RFC 4206, October 2005.

[RFC4420] Farrel, A., Ed., Papadimitriou, D., Vasseur, J.-P., and A. Ayyangar, "Encoding of Attributes for Multiprotocol Label Switching (MPLS) Label Switched Path (LSP) Establishment Using Resource ReserVation Protocol-Traffic Engineering (RSVP-TE)", RFC 4420, February 2006.

[RFC3209] Awduche, D., Berger, L., Gan, D., Li, T., Srinivasan, V., and G. Swallow, "RSVP-TE: Extensions to RSVP for LSP Tunnels", RFC 3209, December 2001.

[RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, March 1997.

[RFC2205] Braden, R., Ed., Zhang, L., Berson, S., Herzog, S., and S. Jamin, "Resource ReSerVation Protocol (RSVP) -- Version 1 Functional Specification", RFC 2205, September 1997.

[RFC3471] Berger, L., Ed., "Generalized Multi-Protocol Label Switching (GMPLS) Signaling Functional Description", RFC 3471, January 2003.

- [RFC3473] Berger, L., Ed., "Generalized Multi-Protocol Label Switching (GMPLS) Signaling Resource ReserVation Protocol-Traffic Engineering (RSVP-TE) Extensions", RFC 3473, January 2003.
- [RFC2961] Berger, L., Gan, D., Swallow, G., Pan, P., Tommasi, F., and S. Molendini, "RSVP Refresh Overhead Reduction Extensions", RFC 2961, April 2001.
- [RFC3031] Rosen, E., Viswanathan, A., and R. Callon, "Multiprotocol Label Switching Architecture", RFC 3031, January 2001.
- [RFC4090] Pan, P., Ed., Swallow, G., Ed., and A. Atlas, Ed., "Fast Reroute Extensions to RSVP-TE for LSP Tunnels", RFC 4090, May 2005.
- [RFC3477] Kompella, K. and Y. Rekhter, "Signalling Unnumbered Links in Resource ReSerVation Protocol - Traffic Engineering (RSVP-TE)", RFC 3477, January 2003.
- [RFC4873] Berger, L., Bryskin, I., Papadimitriou, D., and A. Farrel, "GMPLS Segment Recovery", RFC 4873, April 2007.

9 Qualification of ISOC/IETF:

9.1-9.6 Decisions of ITU Council to admit ISOC to participate in the work of the Sector (June 1995 and June 1996).

9.7 The Internet Engineering Steering Group (IESG) is responsible for ongoing maintenance of the RFCs when the need arises. Comments on RFCs and corresponding changes are accommodated through the existing standardization process.

9.8 Each revision of a given RFC has a different RFC number, so no confusion is possible. All RFCs always remain available on-line. An index of RFCs and their status may be found in the IETF archives at <http://www.rfc-editor.org/rfc.html>.

10 Other (for any supplementary information):

Reference should always be made by RFC number (and not by other designations such as STD, BCP, etc.). References should not be made to documents referred to as "Internet Drafts" or to IETF RFCs categorized as Historic or Experimental. Normative references must only be made to IETF RFCs that are Standards Track or to Informational RFCs that have IETF consensus.

Annex 10

A.5 justification information for the reference to IETF RFC 5331 (2008) (*) (*)

1 Clear description of the referenced document:

IETF RFC 5331 (2008) (*) (*): MPLS Upstream Label Assignment and Context-Specific Label Space

2 Status of approval:

The referred RFC was approved by IESG (Internet Engineering Steering Group).

3 Justification for the specific reference:

G.8110.1 refers the MPLS upstream label assignment and context-specific label space as specified in RFC 5331

4 Current information, if any, about IPR issues:

IETF IPR archives at <http://www.ietf.org/ipr.html>

5 Other useful information describing the "Quality" of the document:

The status of the referred RFC, is "Proposed Standard".

6 The degree of stability or maturity of the document:

The status of the referred RFC, is "Proposed Standard".

7 Relationship with other existing or emerging documents:

References within the referenced RFC are listed under item (8).

8 Any explicit references within that referenced document should also be listed:

[RFC3031] Rosen, E., Viswanathan, A., and R. Callon, "Multiprotocol Label Switching Architecture", RFC 3031, January 2001.

[RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, March 1997.

[RFC5332] Eckert, T., Rosen, E., Aggarwal, R., and Y. Rekhter, "MPLS Multicast Encapsulations", RFC 5332, August 2008.

9 Qualification of ISOC/IETF:

9.1-9.6 Decisions of ITU Council to admit ISOC to participate in the work of the Sector (June 1995 and June 1996).

9.7 The Internet Engineering Steering Group (IESG) is responsible for ongoing maintenance of the RFCs when the need arises. Comments on RFCs and corresponding changes are accommodated through the existing standardization process.

9.8 Each revision of a given RFC has a different RFC number, so no confusion is possible. All RFCs always remain available on-line. An index of RFCs and their status may be found in the IETF archives at <http://www.rfc-editor.org/rfc.html>.

10 Other (for any supplementary information):

Reference should always be made by RFC number (and not by other designations such as STD, BCP, etc.). References should not be made to documents referred to as "Internet Drafts" or to IETF RFCs categorized as Historic or Experimental. Normative references must only be made to IETF RFCs that are Standards Track or to Informational RFCs that have IETF consensus.

Annex 11

A.5 justification information for the reference to IETF RFC 5332 (2008) (*)

1 Clear description of the referenced document:

IETF RFC 5332 (2008) (*): MPLS Multicast Encapsulations

2 Status of approval:

The referred RFC was approved by IESG (Internet Engineering Steering Group).

3 Justification for the specific reference:

G.8110.1 refers the MPLS multicast encapsulations as specified in RFC 5332

4 Current information, if any, about IPR issues:

IETF IPR archives at <http://www.ietf.org/ipr.html>

5 Other useful information describing the "Quality" of the document:

The status of the referred RFC, is "Proposed Standard".

6 The degree of stability or maturity of the document:

The status of the referred RFC, is "Proposed Standard".

7 Relationship with other existing or emerging documents:

References within the referenced RFC are listed under item (8).

8 Any explicit references within that referenced document should also be listed:

[RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, March 1997.

[RFC3031] Rosen, E., Viswanathan, A., and R. Callon, "Multiprotocol Label Switching Architecture", RFC 3031, January 2001.

[RFC3032] Rosen, E., Tappan, D., Fedorkow, G., Rekhter, Y., Farinacci, D., Li, T., and A. Conta, "MPLS Label Stack Encoding", RFC 3032, January 2001.

[RFC4023] Worster, T., Rekhter, Y., and E. Rosen, Ed., "Encapsulating MPLS in IP or Generic Routing Encapsulation (GRE)", RFC 4023, March 2005.

[RFC5331] Aggarwal, R., Rekhter, Y., and E. Rosen, "MPLS Upstream Label Assignment and Context-Specific Label Space", RFC 5331, August 2008.

9 Qualification of ISOC/IETF:

9.1-9.6 Decisions of ITU Council to admit ISOC to participate in the work of the Sector (June 1995 and June 1996).

9.7 The Internet Engineering Steering Group (IESG) is responsible for ongoing maintenance of the RFCs when the need arises. Comments on RFCs and corresponding changes are accommodated through the existing standardization process.

9.8 Each revision of a given RFC has a different RFC number, so no confusion is possible. All RFCs always remain available on-line. An index of RFCs and their status may be found in the IETF archives at <http://www.rfc-editor.org/rfc.html>.

10 Other (for any supplementary information):

Reference should always be made by RFC number (and not by other designations such as STD, BCP, etc.). References should not be made to documents referred to as "Internet Drafts" or to IETF RFCs categorized as Historic or Experimental. Normative references must only be made to IETF RFCs that are Standards Track or to Informational RFCs that have IETF consensus.

Annex 12

A.5 justification information for the reference to IETF RFC 5462 (2009) (*)

1 Clear description of the referenced document:

IETF RFC 5462 (2009) (*): Multiprotocol Label Switching (MPLS) Label Stack Entry: "EXP" Field Renamed to "Traffic Class" Field

2 Status of approval:

The referred RFC was approved by IESG (Internet Engineering Steering Group) with ITU-T support.

3 Justification for the specific reference:

G.8110.1 refers to the TC field as defined in RFC 5462

4 Current information, if any, about IPR issues:

IETF IPR archives at <http://www.ietf.org/ipr.html>

5 Other useful information describing the "Quality" of the document:

The status of the referred RFC, is "Proposed Standard".

6 The degree of stability or maturity of the document:

The status of the referred RFC, is "Proposed Standard".

7 Relationship with other existing or emerging documents:

References within the referenced RFC are listed under item (8).

8 Any explicit references within that referenced document should also be listed:

[RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, March 1997.

[RFC3032] Rosen, E., Tappan, D., Fedorkow, G., Rekhter, Y., Farinacci, D., Li, T., and A. Conta, "MPLS Label Stack Encoding", RFC 3032, January 2001.

[RFC3270] Le Faucheur, F., Wu, L., Davie, B., Davari, S., Vaananen, P., Krishnan, R., Cheval, P., and J. Heinanen, "Multi-Protocol Label Switching (MPLS) Support of Differentiated Services", RFC 3270, May 2002.

[RFC3272] Awduche, D., Chiu, A., Elwalid, A., Widjaja, I., and X. Xiao, "Overview and Principles of Internet Traffic Engineering", RFC 3272, May 2002.

[RFC3443] Agarwal, P. and B. Akyol, "Time To Live (TTL) Processing in Multi-Protocol Label Switching (MPLS) Networks", RFC 3443, January 2003.

[RFC3469] Sharma, V. and F. Hellstrand, "Framework for Multi-Protocol Label Switching (MPLS)-based Recovery", RFC 3469, February 2003.

[RFC3564] Le Faucheur, F. and W. Lai, "Requirements for Support of Differentiated Services-aware MPLS Traffic Engineering", RFC 3564, July 2003.

[RFC3985] Bryant, S. and P. Pate, "Pseudo Wire Emulation Edge-to-Edge (PWE3) Architecture", RFC 3985, March 2005.

- [RFC4182] Rosen, E., "Removing a Restriction on the use of MPLS Explicit NULL", RFC 4182, September 2005.
- [RFC4364] Rosen, E. and Y. Rekhter, "BGP/MPLS IP Virtual Private Networks (VPNs)", RFC 4364, February 2006.
- [RFC4379] Kompella, K. and G. Swallow, "Detecting Multi-Protocol Label Switched (MPLS) Data Plane Failures", RFC 4379, February 2006.
- [RFC4448] Martini, L., Rosen, E., El-Aawar, N., and G. Heron, "Encapsulation Methods for Transport of Ethernet over MPLS Networks", RFC 4448, April 2006.
- [RFC4761] Kompella, K. and Y. Rekhter, "Virtual Private LAN Service (VPLS) Using BGP for Auto-Discovery and Signaling", RFC 4761, January 2007.
- [RFC5129] Davie, B., Briscoe, B., and J. Tay, "Explicit Congestion Marking in MPLS", RFC 5129, January 2008.

9 Qualification of ISOC/IETF:

9.1-9.6 Decisions of ITU Council to admit ISOC to participate in the work of the Sector (June 1995 and June 1996).

9.7 The Internet Engineering Steering Group (IESG) is responsible for ongoing maintenance of the RFCs when the need arises. Comments on RFCs and corresponding changes are accommodated through the existing standardization process.

9.8 Each revision of a given RFC has a different RFC number, so no confusion is possible. All RFCs always remain available on-line. An index of RFCs and their status may be found in the IETF archives at <http://www.rfc-editor.org/rfc.html>.

10 Other (for any supplementary information):

Reference should always be made by RFC number (and not by other designations such as STD, BCP, etc.). References should not be made to documents referred to as "Internet Drafts" or to IETF RFCs categorized as Historic or Experimental. Normative references must only be made to IETF RFCs that are Standards Track or to Informational RFCs that have IETF consensus.

Annex 13

A.5 justification information for the reference to IETF RFC 5586 (2009) (*)

1 Clear description of the referenced document:

IETF RFC 5586 (2009) (*): MPLS Generic Associated Channel

2 Status of approval:

The referred RFC was approved by IESG (Internet Engineering Steering Group) with ITU-T support.

3 Justification for the specific reference:

G.8110.1 refers the GAL and G-ACh as defined in RFC 5586.

4 Current information, if any, about IPR issues:

IETF IPR archives at <http://www.ietf.org/ipr.html>

5 Other useful information describing the "Quality" of the document:

The status of the referred RFC, is "Proposed Standard".

6 The degree of stability or maturity of the document:

The status of the referred RFC, is "Proposed Standard".

7 Relationship with other existing or emerging documents:

References within the referenced RFC are listed under item (8).

8 Any explicit references within that referenced document should also be listed:

[RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, March 1997.

[RFC3031] Rosen, E., Viswanathan, A., and R. Callon, "Multiprotocol Label Switching Architecture", RFC 3031, January 2001.

[RFC3032] Rosen, E., Tappan, D., Fedorkow, G., Rekhter, Y., Farinacci, D., Li, T., and A. Conta, "MPLS Label Stack Encoding", RFC 3032, January 2001.

[RFC3443] Agarwal, P. and B. Akyol, "Time To Live (TTL) Processing in Multi-Protocol Label Switching (MPLS) Networks", RFC 3443, January 2003.

[RFC3692] Narten, T., "Assigning Experimental and Testing Numbers Considered Useful", BCP 82, RFC 3692, January 2004.

[RFC4385] Bryant, S., Swallow, G., Martini, L., and D. McPherson, "Pseudowire Emulation Edge-to-Edge (PWE3) Control Word for Use over an MPLS PSN", RFC 4385, February 2006.

[RFC4446] Martini, L., "IANA Allocations for Pseudowire Edge to Edge Emulation (PWE3)", BCP 116, RFC 4446, April 2006.

[RFC5085] Nadeau, T. and C. Pignataro, "Pseudowire Virtual Circuit Connectivity Verification (VCCV): A Control Channel for Pseudowires", RFC 5085, December 2007.

[RFC5226] Narten, T. and H. Alvestrand, "Guidelines for Writing an IANA Considerations Section in RFCs", BCP 26, RFC 5226, May 2008.

[RFC5462] Andersson, L. and R. Asati, "Multiprotocol Label Switching (MPLS) Label Stack Entry: "EXP" Field Renamed to "Traffic Class" Field", RFC 5462, February 2009.

9 Qualification of ISOC/IETF:

9.1-9.6 Decisions of ITU Council to admit ISOC to participate in the work of the Sector (June 1995 and June 1996).

9.7 The Internet Engineering Steering Group (IESG) is responsible for ongoing maintenance of the RFCs when the need arises. Comments on RFCs and corresponding changes are accommodated through the existing standardization process.

9.8 Each revision of a given RFC has a different RFC number, so no confusion is possible. All RFCs always remain available on-line. An index of RFCs and their status may be found in the IETF archives at <http://www.rfc-editor.org/rfc.html>.

10 Other (for any supplementary information):

Reference should always be made by RFC number (and not by other designations such as STD, BCP, etc.). References should not be made to documents referred to as "Internet Drafts" or to IETF RFCs categorized as Historic or Experimental. Normative references must only be made to IETF RFCs that are Standards Track or to Informational RFCs that have IETF consensus.

Annex 14

A.5 justification information for the reference to IETF RFC 5654 (2009) (*)

1 Clear description of the referenced document:

IETF RFC 5654 (2009) (*): MPLS-TP Requirements

2 Status of approval:

The referred RFC was approved by IESG (Internet Engineering Steering Group) with ITU-T support.

3 Justification for the specific reference:

G.8110.1 refers to the MPLS-TP Requirements as defined in RFC 5654

4 Current information, if any, about IPR issues:

IETF IPR archives at <http://www.ietf.org/ipr.html>

5 Other useful information describing the "Quality" of the document:

The status of the referred RFC, is "Proposed Standard".

6 The degree of stability or maturity of the document:

The status of the referred RFC, is "Proposed Standard".

7 Relationship with other existing or emerging documents:

References within the referenced RFC are listed under item (8).

8 Any explicit references within that referenced document should also be listed:

[RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, March 1997.

[RFC3031] Rosen, E., Viswanathan, A., and R. Callon, "Multiprotocol Label Switching Architecture", RFC 3031, January 2001.

[RFC3985] Bryant, S. and P. Pate, "Pseudo Wire Emulation Edge-to-Edge (PWE3) Architecture", RFC 3985, March 2005.

[RFC4929] Andersson, L. and A. Farrel, "Change Process for Multiprotocol Label Switching (MPLS) and Generalized MPLS (GMPLS) Protocols and Procedures", BCP 129, RFC 4929, June 2007.

[ITU.G805.2000] International Telecommunications Union, "Generic functional architecture of transport networks", ITU-T Recommendation G.805, March 2000.

[ITU.G8080.2006] International Telecommunications Union, "Architecture for the automatically switched optical network (ASON)", ITU-T Recommendation G.8080, June 2006.

[ITU.G8080.2008] International Telecommunications Union, "Architecture for the automatically switched optical network (ASON) Amendment 1", ITU-T Recommendation G.8080 Amendment 1, March 2008.

9 Qualification of ISOC/IETF:

9.1-9.6 Decisions of ITU Council to admit ISOC to participate in the work of the Sector (June 1995 and June 1996).

9.7 The Internet Engineering Steering Group (IESG) is responsible for ongoing maintenance of the RFCs when the need arises. Comments on RFCs and corresponding changes are accommodated through the existing standardization process.

9.8 Each revision of a given RFC has a different RFC number, so no confusion is possible. All RFCs always remain available on-line. An index of RFCs and their status may be found in the IETF archives at <http://www.rfc-editor.org/rfc.html>.

10 Other (for any supplementary information):

Reference should always be made by RFC number (and not by other designations such as STD, BCP, etc.). References should not be made to documents referred to as "Internet Drafts" or to IETF RFCs categorized as Historic or Experimental. Normative references must only be made to IETF RFCs that are Standards Track or to Informational RFCs that have IETF consensus.

Annex 15

A.5 justification information for the reference to IETF RFC 5718 (2010) (*) (*)

1 Clear description of the referenced document:

IETF RFC 5718 (2010) (*) (*): An In-Band Data Communication Network For the MPLS Transport Profile

2 Status of approval:

The referred RFC was approved by IESG (Internet Engineering Steering Group) with ITU-T support.

3 Justification for the specific reference:

G.8110.1 refers to the MPLS-TP DCN as defined in RFC 5718

4 Current information, if any, about IPR issues:

IETF IPR archives at <http://www.ietf.org/ipr.html>

5 Other useful information describing the "Quality" of the document:

The status of the referred RFC, is "Proposed Standard".

6 The degree of stability or maturity of the document:

The status of the referred RFC, is "Proposed Standard".

7 Relationship with other existing or emerging documents:

RFC 5718 is based on definitions in RFC 5586 and references RFC 5586

8 Any explicit references within that referenced document should also be listed:

[RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, March 1997.

[RFC4385] Bryant, S., Swallow, G., Martini, L., and D. McPherson, "Pseudowire Emulation Edge-to-Edge (PWE3) Control Word for Use over an MPLS PSN", RFC 4385, February 2006.

[RFC4446] Martini, L., "IANA Allocations for Pseudowire Edge to Edge Emulation (PWE3)", BCP 116, RFC 4446, April 2006.

[RFC5586] Bocci, M., Ed., Vigoureux, M., Ed., and S. Bryant, Ed., "MPLS Generic Associated Channel", RFC 5586, June 2009.

9 Qualification of ISOC/IETF:

9.1-9.6 Decisions of ITU Council to admit ISOC to participate in the work of the Sector (June 1995 and June 1996).

9.7 The Internet Engineering Steering Group (IESG) is responsible for ongoing maintenance of the RFCs when the need arises. Comments on RFCs and corresponding changes are accommodated through the existing standardization process.

9.8 Each revision of a given RFC has a different RFC number, so no confusion is possible. All RFCs always remain available on-line. An index of RFCs and their status may be found in the IETF archives at <http://www.rfc-editor.org/rfc.html>.

10 Other (for any supplementary information):

Reference should always be made by RFC number (and not by other designations such as STD, BCP, etc.). References should not be made to documents referred to as "Internet Drafts" or to IETF RFCs categorized as Historic or Experimental. Normative references must only be made to IETF RFCs that are Standards Track or to Informational RFCs that have IETF consensus.

Annex 16

A.5 justification information for the reference to IETF RFC 5860 (2010) (*)

1 Clear description of the referenced document:

IETF RFC 5860 (2010) (*): Requirements for Operations, Administration, and Maintenance (OAM) in MPLS Transport Networks

2 Status of approval:

The referred RFC was approved by IESG (Internet Engineering Steering Group) with ITU-T support.

3 Justification for the specific reference:

G.8110.1 refers the MPLS-TP OAM Requirements as defined in RFC 5860

4 Current information, if any, about IPR issues:

IETF IPR archives at <http://www.ietf.org/ipr.html>

5 Other useful information describing the "Quality" of the document:

The status of the referred RFC, is "Proposed Standard".

6 The degree of stability or maturity of the document:

The status of the referred RFC, is "Proposed Standard".

7 Relationship with other existing or emerging documents:

References within the referenced RFC are listed under item (8).

8 Any explicit references within that referenced document should also be listed:

- [1] Niven-Jenkins, B., Brungard, D., Betts, M., Sprecher, N., and S. Ueno, "Requirements of an MPLS Transport Profile", RFC 5654, September 2009.
- [2] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, March 1997.
- [3] ITU-T Recommendation G.806, "Characteristics of transport equipment - Description methodology and generic functionality", 2009.
- [4] Kompella, K. and G. Swallow, "Detecting Multi-Protocol Label Switched (MPLS) Data Plane Failures", RFC 4379, February 2006.
- [5] Nadeau, T. and C. Pignataro, "Pseudowire Virtual Circuit Connectivity Verification (VCCV): A Control Channel for Pseudowires", RFC 5085, December 2007.
- [6] Almes, G., Kalidindi, S., and M. Zekauskas, "A One-way Packet Loss Metric for IPPM", RFC 2680, September 1999.
- [7] Almes, G., Kalidindi, S., and M. Zekauskas, "A One-way Delay Metric for IPPM", RFC 2679, September 1999.
- [8] Almes, G., Kalidindi, S., and M. Zekauskas, "A Round-trip Delay Metric for IPPM", RFC 2681, September 1999.

9 Qualification of ISOC/IETF:

9.1-9.6 Decisions of ITU Council to admit ISOC to participate in the work of the Sector (June 1995 and June 1996).

9.7 The Internet Engineering Steering Group (IESG) is responsible for ongoing maintenance of the RFCs when the need arises. Comments on RFCs and corresponding changes are accommodated through the existing standardization process.

9.8 Each revision of a given RFC has a different RFC number, so no confusion is possible. All RFCs always remain available on-line. An index of RFCs and their status may be found in the IETF archives at <http://www.rfc-editor.org/rfc.html>.

10 Other (for any supplementary information):

Reference should always be made by RFC number (and not by other designations such as STD, BCP, etc.). References should not be made to documents referred to as "Internet Drafts" or to IETF RFCs categorized as Historic or Experimental. Normative references must only be made to IETF RFCs that are Standards Track or to Informational RFCs that have IETF consensus.
