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Using the Generic Associated Channel Label for Pseudowire in the MPLS Transport Profile (MPLS-TP)

Abstract

This document describes the requirements for using the Generic Associated Channel Label (GAL) in pseudowires (PWs) in MPLS Transport Profile (MPLS-TP) networks, and provides an update to the description of GAL usage in RFC 5586 by removing the restriction that is imposed on using GAL for PWs, especially in MPLS-TP environments.

Status of This Memo

This is an Internet Standards Track document.

This document is a product of the Internet Engineering Task Force (IETF). It represents the consensus of the IETF community. It has received public review and has been approved for publication by the Internet Engineering Steering Group (IESG). Further information on Internet Standards is available in Section 2 of RFC 5741.

Information about the current status of this document, any errata, and how to provide feedback on it may be obtained at http://www.rfc-editor.org/info/rfc6423.

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1. Introduction

[RFC5586] generalizes the Associated Channel mechanism of [RFC5085] to be used for Sections, Label Switched Paths (LSPs), and Pseudowires (PWs) in MPLS networks. [RFC5085] defines the Associated Channel Header (ACH), and [RFC5586] generalizes this for use as the Generic Associated Channel (G-ACh).

[RFC5586] defines a generalized label-based exception mechanism using the Generic Associated Channel Label (GAL) to work together with the ACH for use with LSPs but prohibits GAL usage with PWs.

This document removes the restriction imposed by [RFC5586].

2. Conventions Used in This Document

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in [RFC2119].

2.1. Terminology

ACH	Associated Channel Header
CW	Control Word
G-ACh	Generic Associated Channel
GAL	Generic Associated Channel Label
MPLS-TP	MPLS Transport Profile
OAM	Operation, Administration, and Maintenance

3. GAL Usage for MPLS-TP PW

According to the MPLS-TP requirements document [RFC5654], it is necessary that MPLS-TP mechanisms and capabilities be able to interoperate with the existing IETF MPLS [RFC3031] and IETF PWE3 [RFC3985] architectures as appropriate. [RFC5586] differentiates between the usage of the GAL with PWs in MPLS and MPLS-TP environments in Section 4.2 as follows:

> In MPLS-TP, the GAL MUST be used with packets on a G-ACh on LSPs, Concatenated Segments of LSPs, and with Sections, and MUST NOT be used with PWs.

This indicates that the GAL can be used for MPLS-TP LSPs and Sections, but not for PWs in an MPLS-TP network.

However, there is no restriction imposed on the usage of the GAL in MPLS PWs, which is described immediately afterwards in the same section (Section 4.2) of [RFC5586]:

> However, in other MPLS environments, this document places no restrictions on where the GAL may appear within the label stack or its use with PWs.

The inconsistency between the usage of the GAL with MPLS PWs and MPLS-TP PWs may cause unnecessary implementation differences and is in disagreement with the MPLS-TP requirements.

Therefore, this document specifies that the GAL can be used with packets on a G-ACh on LSPs, Concatenated Segments of LSPs, Sections, and PWs in both MPLS and MPLS-TP environments without discrimination.

[RFC5586] is updated by removing the restrictions on using GAL for PW as follows:

- Section 1 (Introduction) in [RFC5586], the original text:

  > The GAL mechanism is defined to work together with the ACH for LSPs and MPLS Sections.

  is replaced by:

  > The GAL mechanism is defined to work together with the ACH for LSPs and MPLS Sections, and for PWs.

- Section 4.2. (GAL Applicability and Usage) in [RFC5586], the original text:

  > In MPLS-TP, the GAL MUST be used with packets on a G-ACh on LSPs, Concatenated Segments of LSPs, and with Sections, and MUST NOT be used with PWs. It MUST always be at the bottom of the label stack (i.e., S bit set to 1). However, in other MPLS environments, this document places no restrictions on where the GAL may appear within the label stack or its use with PWs.

  is replaced by:

  > In MPLS-TP, the GAL MUST be used with packets on a G-ACh on LSPs, Concatenated Segments of LSPs, and with Sections, and MAY be used with PWs. The presence of a GAL indicates that an ACH immediately follows the MPLS label stack.

4. Security Considerations

There are no further security considerations than those in [RFC5586].

5. Acknowledgments

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6. References

6.1. Normative References

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

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6.2. Informative References

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