           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
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   received public review and has been approved for publication by the
   Internet Engineering Steering Group (IESG).  Further information on
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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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   Zhang, Guanghui Sun, Italo Busi, and Matthew Bocci for their
   contributions to this work.

   The authors would also like to thank the authors of [RFC5586] and
   people who were involved in the development of [RFC5586].

6.  References

6.1.  Normative References

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6.2.  Informative References

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