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Retiring TLVs from the Associated Channel Header of the MPLS Generic Associated Channel

[draft-farbryantrel-mpls-retire-ach-tlv-00.txt](#)

Abstract

The MPLS Generic Associated Channel (G-ACh) is a generalization of the applicability of the Pseudowire (PW) Associated Channel Header (ACH). [RFC 5586](#) defines the concept of Type-Length-Variable (TLV) constructs that can be carried in messages on the G-ACh by placing them in the ACH.

No Associated Channel Type yet defined uses a TLV. Furthermore, it is believed that handling TLVs in hardware introduces significant problems to the fast-path, and since G-ACh messages are intended to be processed substantially in hardware, the use of TLVs in undesirable.

This document updates [RFC 5586](#) by retiring ACH TLVs and removing the associated registry.

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1. Introduction and Scope

[RFC 4385](#) [[RFC4385](#)] defines that is the first nibble of a packet carried over an MPLS packet switched network has a value of 1, then the packet starts with a specific header format call the Pseudowire Associated Channel Header (known as the PWACH or more generally as the ACH). This mechanism creates an Associated Channel that is a message channel associated with a specific pseudowire (PW).

The applicability of the ACH is generalized in [RFC 5586](#) [[RFC5586](#)] to define the MPLS Generic Associated Channel (G-ACh). This creates a common encapsulation header for control channel messages associated with MPLS Sections, Label Switching Paths (LSPs), and PWs.

As part of making the ACH fully generic, [RFC 5586](#) defines ACH Type-Length-Variable (TLV) constructs. According to [RFC 5586](#):

In some applications of the generalized associated control channel, it is necessary to include one or more ACH TLVs to provide additional context information to the G-ACh packet.

[RFC 5586](#) goes on to say:

If the G-ACh message MAY be preceded by one or more ACH TLVs, then this MUST be explicitly specified in the definition of an ACH Channel Type.

However, of the 18 ACH Channel Types currently defined none allows the use of ACH TLVs [[IANA-ACH](#)]. There are no currently live Internet-Drafts that utilize ACH TLVs.

Furthermore, G-ACh packets are intended to be substantially processed in hardware, however, processing TLVs in hardware can be hard because

of the unpredictable formats and lengths that they introduce to the normal ACH format.

This document determines that ACH TLVs are not useful and might be harmful. It updates [RFC 5586](#) by deprecating the ACH TLV and updating the associated IANA registries as described in [Section 4](#) of this document.

[1.1.](#) Specification of Requirements

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.](#) Update to [RFC 5586](#)

[Section 3 of RFC 5586](#) is deleted.

[3.](#) Implication for the ACH

A G-ACh message MUST NOT be preceded by an ACH TLV.

[4.](#) IANA Considerations

This document requests IANA to make two changes to the IANA registries.

[4.1.](#) Associated Channel Header TLV Registry

The "Pseudowire Name Spaces (PWE3)" registry has a sub-registry called the "Associated Channel Header TLV Registry". IANA is requested to entirely delete this registry leaving no record.

[4.2.](#) Pseudowire Associated Channel Types Registry

The "Pseudowire Name Spaces (PWE3)" registry has a sub-registry called the "Pseudowire Associated Channel Types Registry". This registry includes a column marked "TLV Follows". IANA is requested to entirely delete this column leaving no record.

[5.](#) Manageability Considerations

This document will have no impact on network or device manageability because there are no ACH Types that allow the use of TLVs.

The document removes a feature that might have been used to enhance management messages, and especially Operations, Management, and Administration (OAM) messages. However, given the considerable

experience in defining MPLS OAM messages in the last few years, it would appear that this feature is not useful.

It is possible that packet sniffers that have already been implemented will look for ACH TLVs. The deletion of the construct will not have a negative impact.

6. Security Considerations

Deleting the ACH TLV has a marginal positive effect on security because it removes a feature that might have been used as an attack vector to carry false information or to bloat G-ACh messages.

Otherwise, this document has no implications for security.

7. References

7.1. Normative References

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

7.2. Informative References

- [IANA-ACH] "Pseudowire Associated Channel Types", IANA, <http://www.iana.org/assignments/pwe3-parameters/pwe3-parameters.xml#pwe3-parameters-10>

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