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RFC6374 over UDP
draft-bryant-mpls-rfc6374-over-udp-00

Abstract

In [draft-bryant-mpls-synonymous-flow-labels](#) the concept of MPLS synonymous flow labels (SFL) was introduced and it was shown how they could be used to support [RFC6374](#) loss measurements. In [draft-bryant-mpls-sfl-control](#) the request, lifetime management and withdrawal of SFLs was described. In this memo we show how these two protocols can be run over UDP to support the operation of [RFC6374](#) in systems that do not support the Generic Associated Channel Label (GAL) ([RFC5586](#)).

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[1.](#) Introduction

In [draft-bryant-mpls-synonymous-flow-labels](#) the concept of MPLS synonymous flow labels (SFL) was introduced and it was shown how they could be used to support [RFC6374](#) loss measurements. In [draft-bryant-mpls-sfl-control](#) the request, lifetime management and withdrawal of SFLs was described. In this memo we show how these two protocols can be run over UDP to support the operation of [RFC6374](#) in systems that do not support the Generic Associated Channel Label (GAL) [[RFC5586](#)].

The approach is to run an Associated Channel Header directly over UDP using the ACH UDP port supplemented by addressing information carried in the ACH payload. This memo explains how the extension of [RFC6374](#) as described in [draft-bryant-mpls-synonymous-flow-labels](#) and [draft-bryant-mpls-sfl-control](#) provide the necessary information to provide mapping between the [RFC6374](#) packet carried over UDP and the MPLS construct being monitored, even when the [RFC6374](#) protocol exchange is entirely out of band relative to the Label Switched Path (LSP), Virtual Private Network (VPN) or Pseudowire (PW) being instrumented.

The key to this is the decoupling between the [RFC6374](#) message and the data plane provided through the use of synonymous flow labels (SFL) as described in [draft-bryant-mpls-synonymous-flow-labels](#).

Nothing in this memo prevents the use of the ACH UDP port for other types of Associated Channels, but the precise method of doing so is

outside the scope of this text.

2. Requirements Language

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

3. Protocol Stack

The protocol stack is shown in Figure 1. It consists of three components, the UDP header, the ACH and either an [RFC6374](#) message or an SFL Control message.

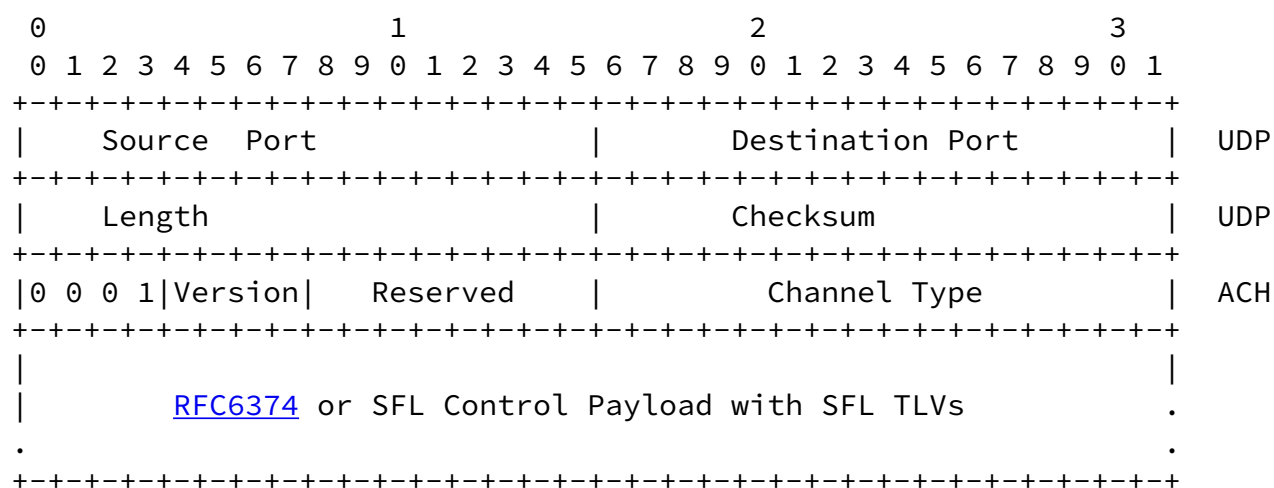


Figure 1: [RFC6374](#) over UDP Protocol Stack

3.1. Querier to Responder

The following is rather laboured, but it is necessary to demonstrate that all of the required mapping information is carried.

Consider the direction Querier to Responder for [RFC6374](#) Messages. The following explains the identifier mapping.

1. Destination IP address (carried in the outer IP header (not shown)). This is used to identify the targeted [RFC6374](#) Responder to the IP network.
2. Source IP address (carried in the outer IP header (not shown)). This is used to identify the originating [RFC6374](#) Querier to the [RFC6374](#) Responder in order for it to construct the return IP packet.
3. UDP Source Port used by the [RFC6374](#) Responder to direct responses to the correct Query process on the [RFC6374](#) Querier.

4. UDP Destination Port is used by [RFC6374](#) Querier to direct the message to the correct process on the [RFC6374](#) Responder.
5. IP and UDP source and destination information are reversed in the usual way in the ACH Response messages from Responder back to Querier.
6. The [RFC6374](#) Session Identifier used by both Querier and Responder to discriminate between multiple [RFC6374](#) sessions running concurrently between the two nodes.
7. The SFL from the SFL TLV in the [RFC6374](#) messages is used to identify the MPLS label that is being instrumented.
8. The SFL Control Protocol Session identifier used by both Querier and Responder to discriminate between multiple [RFC6374](#) sessions running concurrently between the two nodes and used to bind the SFL control protocol session to the [RFC6374](#) session.

Note that a node running the SFL control protocol allocates a unique SFL in response to each SFL request, and thus there is no ambiguity as to which session between which source-destination pair a particular label belongs.

Also note that there is no restriction on the use of the same SFL by many nodes since it is always known which node allocated it by reference to items 1..8 in the list above.

[4.](#) Manageability Considerations

This may be provided in a future version of this document.

[5.](#) Security Considerations

Great care needs to be taken to ensure that the UDP packets defined in this document do not enter the network from unauthorised sources. This can be achieved by careful address management and the use of appropriate access control at the network's IP entry points.

[6.](#) IANA Considerations

IANA is requested to allocate a UDP port from the user port range:

Service Name: ACH over UDP

Port Number: TBD

Description: Transport of Associated Channel Headers over UDP

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[7.](#) Acknowledgements

TBD

[8.](#) Normative References

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

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

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