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**Bidirectional Forwarding Detection (BFD) on Multi-chassis Link
Aggregation Group (MC-LAG) Interfaces in IP Networks
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Abstract

This document describes use of Bidirectional Forwarding Detection for Multi-chassis Link Aggregation Group to provide faster than Link Aggregation Control Protocol convergence. This specification enhances and updates [RFC 7130](#) "Bidirectional Forwarding Detection (BFD) on Link Aggregation Group (LAG) Interfaces".

Status of This Memo

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[1.](#) Introduction

The [\[RFC7130\]](#) defines use of Bidirectional Forwarding Detection (BFD) on Link Aggregation Group (LAG) interfaces. Multi-chassis LAG (MC-LAG) is type of LAG [\[IEEE.802.1AX.2008\]](#) with member links terminated on separate chassis. [\[IEEE.802.1AX.2008\]](#) does not specify MC-LAG but doesn't preclude it either. Link Aggregation Control Protocol (LACP), also defined in [\[IEEE.802.1AX.2008\]](#), can work with MC-LAG but, as in LAG case, can detect link failure only in range of single seconds. This document defines how mechanism defined to work on LAG interfaces [\[RFC7130\]](#) can be adapted to MC-LAG case to enable sub-second detection of member link failure.

[1.1.](#) Conventions used in this document

[1.1.1.](#) Terminology

BFD: Bidirectional Forwarding Detection

LAG: Link Aggregation Group

LACP: Link Aggregation Control Protocol

MC-LAG: Multi-chassis Link Aggregation Group

[1.1.2.](#) 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 [\[RFC2119\]](#).

2. Problem Statement

[RFC7130] does not specify selection of the destination IP address for the BFD control packet. The only requirement related to the selection is in [Section 2.1](#) stating that the use of address family across all member links of the given LAG MUST be consistent across all the links. Thus it is implied that the same unicast IP address will be used on all member links of the LAG as use of different destination addresses would defeat the purpose of [\[RFC7130\]](#) transforming the case into set of single-hop BFD sessions [\[RFC5881\]](#). But single unicast IP address may not work in MC-LAG case as the member links are terminated on the separate chassis. This document proposes how to overcome this problem if using IP or Multi-Protocol Label Switching (MPLS) data plane encapsulation.

3. BFD on MC-LAG with IP only data plane

As described in [\[RFC7130\]](#) micro-BFD session on the LAG interfaces may use either IPv4 or IPv6 address family. In some cases two sessions, one with IPv4 and one with IPv6 addresses, may run concurrently. This document doesn't change any of these but specifies selection of the destination IP address in MC-LAG use case:

- o if IPv4 address family being used for micro-BFD session, then the link-local multicast address 224.0.0.0/24 SHOULD be used as the destination IP address. Subnet broadcast address MAY be used as the destination IP address as well;
- o if the address family used is IPv6, then the IPv6 link-local multicast address FF02:0:0:0:0:0:0:2 MUST be used as the destination IP address.

4. IANA Considerations

This document makes no requests for IANA allocations. This section may be deleted by RFC Editor.

5. Security Considerations

Security considerations discussed in [\[RFC7130\]](#) apply to this document.

6. Acknowledgements

7. Normative References

- [IEEE.802.1AX.2008]
"IEEE Standard for Local and metropolitan area networks - Link Aggregation", IEEE 802.1-AX, November 2008.
- [RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", [BCP 14](#), [RFC 2119](#), DOI 10.17487/RFC2119, March 1997, <<http://www.rfc-editor.org/info/rfc2119>>.
- [RFC5881] Katz, D. and D. Ward, "Bidirectional Forwarding Detection (BFD) for IPv4 and IPv6 (Single Hop)", [RFC 5881](#), DOI 10.17487/RFC5881, June 2010, <<http://www.rfc-editor.org/info/rfc5881>>.
- [RFC7130] Bhatia, M., Ed., Chen, M., Ed., Boutros, S., Ed., Binderberger, M., Ed., and J. Haas, Ed., "Bidirectional Forwarding Detection (BFD) on Link Aggregation Group (LAG) Interfaces", [RFC 7130](#), DOI 10.17487/RFC7130, February 2014, <<http://www.rfc-editor.org/info/rfc7130>>.

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