

Network Working Group
Internet-Draft
Intended status: Standards Track
Expires: 16 May 2022

H. Bidgoli, Ed.
Nokia
S. Venaas
Cisco System, Inc.
M. Mishra
Cisco System
Z. Zhang
Juniper Networks
M. McBride
Futurewei Technologies Inc.
12 November 2021

PIM Light
draft-hb-pim-light-01

Abstract

This document specifies a new Protocol Independent Multicast interface which does not need PIM Hello to accept PIM Join/Prunes or PIM Asserts.

Status of This Memo

This Internet-Draft is submitted in full conformance with the provisions of [BCP 78](#) and [BCP 79](#).

Internet-Drafts are working documents of the Internet Engineering Task Force (IETF). Note that other groups may also distribute working documents as Internet-Drafts. The list of current Internet-Drafts is at <https://datatracker.ietf.org/drafts/current/>.

Internet-Drafts are draft documents valid for a maximum of six months and may be updated, replaced, or obsoleted by other documents at any time. It is inappropriate to use Internet-Drafts as reference material or to cite them other than as "work in progress."

This Internet-Draft will expire on 16 May 2022.

Copyright Notice

Copyright (c) 2021 IETF Trust and the persons identified as the document authors. All rights reserved.

This document is subject to [BCP 78](#) and the IETF Trust's Legal Provisions Relating to IETF Documents (<https://trustee.ietf.org/license-info>) in effect on the date of publication of this document. Please review these documents carefully, as they describe your rights

Internet-Draft

PIM Light

November 2021

and restrictions with respect to this document. Code Components extracted from this document must include Simplified BSD License text as described in Section 4.e of the [Trust Legal Provisions](#) and are provided without warranty as described in the Simplified BSD License.

Table of Contents

1.	Introduction	2
2.	Conventions used in this document	2
2.1.	Definitions	2
3.	PIM Light Interface	3
3.1.	PLI Configuration	4
4.	IANA Considerations	4
5.	Security Considerations	4
6.	Acknowledgments	4
7.	References	4
7.1.	Normative References	4
7.2.	Informative References	4
	Authors' Addresses	4

[1.](#) Introduction

It might be desirable to create a PIM interface between routers where only PIM Join/Prunes and Asserts packets are triggered over it without having a full PIM neighbor discovery. As an example, this type of PIM interface can be useful in some scenarios where the multicast state needs to be signaled over a network or medium which is not capable of or has no need for creating full PIM neighborhood between its Peer Routers. These type of PIM interfaces are called PIM Light Interfaces (PLI).

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

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 [BCP 14](#) [[RFC2119](#)] [[RFC8174](#)] when, and only when, they appear in all capitals, as shown here.

[2.1.](#) Definitions

This draft uses definitions used in [[RFC7761](#)]

Internet-Draft

PIM Light

November 2021

[3.](#) PIM Light Interface

RFC [\[RFC7761\]](#) [section 4.3.1](#) describes the PIM neighbor discovery via Hello messages. It also describes that PIM Join/Prune or Assert messages are not accepted from a router unless a Hello message has been heard from that router.

In some scenarios it is desired to build a multicast state between two directly attach or remote routers without establishing a PIM neighborship. There could be many reasons for this desired, but one example is the desired to signal multicast states upstream between two or more PIM Domains via a network or medium that is not optimized for or does not require PIM Neighbor establishment. An example is a BIER network connecting multiple PIM domains and PIM Join/prune messages are tunneled via bier as per [\[draft-ietf-bier-pim-signaling\]](#).

A PIM Light Interface (PLI) does accept Join/Prune and Assert messages from a unknown PIM router, without receiving a PIM Hello message from the router. Lack of Hello Messages on a PLI means there is no mechanism to learn about the neighboring PIM routers on each interface and there is no DR Priority options communicated between Routers either. As such the router doesn't create any General-Purpose state for neighboring PIM routers and it accepts and installs each Join message from upstream routers in its multicast routing table.

Because of this a PLI needs to be created in very especial cases and the application that is using these PLIs should ensure there is no multicast duplication of packets. As an example, multiple upstream routers sending the same multicast stream to a single downstream router.

As an example, in a BIER domain which is connecting 2 PIM networks. A PLI can be used to connect edge BIER routers and only multicast states communicated via PIM Join/prunes over the BIER domain. In

this case to ensure there is no multicast stream duplication the PIM routers attached on each side of the BIER domain might want to establish PIM Adjacency via [[RFC7761](#)] to ensure DR selection on the edge of the BIER router while PLI is used in core of the BIER Domain.

[3.1.](#) PLI Configuration

Since a PLI doesn't require PIM Hello Messages and PIM neighbor adjacency is not checked for join/prune/assert messages, there needs to be a mechanism to enable PLI on interfaces for security purpose, while on some other interfaces this may be enabled automatically. An example of the latter is the logical interface for a BIER sub-domain [[draft-ietf-bier-pim-signaling](#)].

[4.](#) IANA Considerations

[5.](#) Security Considerations

[6.](#) Acknowledgments

[7.](#) References

[7.1.](#) Normative References

[[draft-ietf-bier-pim-signaling](#)]

"H.Bidgoli, F.XU, J. Kotalwar, I. Wijnands, M.Mishra, Z. Zhang, "PIM Signaling Through BIER Core"", July 2021.

[RFC2119] "S. Brandner, "Key words for use in RFCs to Indicate Requirement Levels"", March 1997.

[RFC7761] "B.Fenner, M.Handley, H. Holbrook, I. Kouvelas, R. Parekh, Z.Zhang "PIM Sparse Mode"", March 2016.

[RFC8174] "B. Leiba, "ambiguity of Uppercase vs Lowercase in [RFC 2119](#) Key Words"", May 2017.

[7.2.](#) Informative References

[RFC8279] "Wijnands, IJ., Rosen, E., Dolganow, A., Przygienda, T. and S. Aldrin, "Multicast using Bit Index Explicit Replication"", October 2016.

Authors' Addresses

Hooman Bidgoli (editor)
Nokia
Ottawa
Canada

Bidgoli, et al.

Expires 16 May 2022

[Page 4]

Internet-Draft

PIM Light

November 2021

Email: hooman.bidgoli@nokia.com

Stig
Cisco System, Inc.
San Jose,
United States of America

Email: stig@cisco.com

Mankamana Mishra
Cisco System
Milpitas,
United States of America

Email: mankamis@cisco.com

Zhaohui Zhang
Juniper Networks
Boston,

United States of America

Email: zzhang@juniper.com

Mike

Futurewei Technologies Inc.

Santa Clara,

United States of America

Email: michael.mcbride@futurewei.com