Abstract

This document reports the results of the OSPFv2 Prefix/Link Attributes implementation survey. The survey has seven questions related to the implementer’s support of OSPFv2 Prefix/Link Attributes. After a brief summary of the results, each response is listed. This document contains responses from six implementers who completed the survey. No external means were used to verify the accuracy of the information submitted by the respondents. The respondents are considered experts on the products they reported on. Additionally, responses were omitted from implementers who indicated that they have not implemented the function yet.

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 http://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 November 9, 2015.

Copyright Notice

Copyright (c) 2015 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 (http://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 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.

This document may contain material from IETF Documents or IETF Contributions published or made publicly available before November 10, 2008. The person(s) controlling the copyright in some of this material may not have granted the IETF Trust the right to allow modifications of such material outside the IETF Standards Process. Without obtaining an adequate license from the person(s) controlling the copyright in such materials, this document may not be modified outside the IETF Standards Process, and derivative works of it may not be created outside the IETF Standards Process, except to format it for publication as an RFC or to translate it into languages other than English.

Table of Contents

1. Introduction ................................................. 2
   1.1. Requirements notation ................................... 3
2. Summary Results of Survey ................................. 3
3. Implementation Survey Results ............................ 3
   3.1. Alcatel-Lucent .......................................... 3
   3.2. Cisco .................................................. 4
   3.3. Huawei .................................................. 5
   3.4. Juniper .................................................. 5
4. Security Considerations ..................................... 6
5. IANA Considerations .......................................... 6
6. References ................................................... 6
   6.1. Normative References .................................... 6
   6.2. Informative References .................................. 6
Appendix A. Acknowledgments .................................... 7
Author’s Address ............................................... 7

1. Introduction

This document reports the results of the OSPFv2 Prefix/Link Attributes [PREFIX-LINK-ATTR] implementation survey. The survey has seven questions related to the implementer’s support of OSPFv2 Prefix/Link Attributes. The OSPFv2 Prefix/Link Attributes are extensions to the base OSPFv2 protocol [OSPFV2] to allow additional information to be associated with an OSPFv2 link or attribute. After a brief summary of the results, each response is listed. This document contains responses from four implementers who completed the survey. No external means were used to verify the accuracy of the information submitted by the respondents. The respondents are
considered experts on the products they reported on. Additionally, responses were omitted from implementers who indicated that they have not implemented the function yet.

1.1. Requirements notation

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 [RFC-KEYWORDS].

2. Summary Results of Survey

Four vendors replied to the survey. These include Alcatel-Lucent, Cisco, Huawei, Juniper. Cisco and Alcatel-Lucent also did interoperability testing. The Cisco and Alcatel-Lucent implementations are in released software versions. The Huawei and Junipers implementation releases are pending. For prefix attributes, the recent change incorporating the A-Flag is pending implementation for all four vendors. Implementation of the N-flag is pending for the Huawei and Juniper implementations. Otherwise, the vendors have full implementations of [PREFIX-LINK-ATTR]. For all four vendors, segment routing [SEGMENT-ROUTING] was an application making use of the extensions. Additionally, Cisco has implemented Topology-Independent Loop-Free Alternatives (TI-LFA) [TI-LFA] and Bit Indexed Egress Replication (BIER) advertisement [BIER].

3. Implementation Survey Results

3.1. Alcatel-Lucent

The Alcatel-Lucent responses to the survey questions are as follows:

1. Have you implemented the OSPFv2 Prefix/Link Attributes Draft? Yes

2. Have you implemented the OSPFv2 Extended Prefix opaque LSA and OSPFv2 Extended Prefix TLV? Yes

3. If yes for #3, have you implemented the A and N flags which have been moved from the segment routing extensions? Yes for N-flag, A-flag not yet.

4. Have you implemented the OSPFv2 Extended Link opaque LSA and OSPFv2 Extended Link TLV? Yes
5. In your implementation, what applications utilize the OSPFv2 Extended Prefix/Link attributes (e.g., segment routing)?  Segment Routing

6. Is the function in a generally available software release?  Yes - Product Name: SR OS, Release: 13.0.R4

7. Have you tested interoperability with any other vendors?  If yes, with whom?  Yes. With Cisco.

8. Would you be amenable to your data being included in an implementation survey document (complete with vendor identification)?  Yes

3.2. Cisco

The Cisco responses to the survey questions are as follows:

1. Have you implemented the OSPFv2 Prefix/Link Attributes Draft?  Yes

2. Have you implemented the OSPFv2 Extended Prefix opaque LSA and OSPFv2 Extended Prefix TLV?  Yes

3. If yes for #3, have you implemented the A and N flags which have been moved from the segment routing extensions?  Yes for N-flag, A-flag not yet.

4. Have you implemented the OSPFv2 Extended Link opaque LSA and OSPFv2 Extended Link TLV?  Yes

5. In your implementation, what applications utilize the OSPFv2 Extended Prefix/Link attributes (e.g., segment routing)?  Segment Routing, Topology-Independent Loop-Free-Alternatives (TI-LFA), and OSPF Bit Index Egress Replication (BIER) extensions

6. Is the function in a generally available software release?  Segment Routing and TI-LFA are available in IOS-XR 5.3.2.  OSPF BIER Extensions are not available yet.

7. Have you tested interoperability with any other vendors?  If yes, with whom?  Yes. With Alcatel-Lucent.

8. Would you be amenable to your data being included in an implementation survey document (complete with vendor identification)?  Yes
3.3. Huawei

The Huawei responses to the survey questions are as follows:

1. Have you implemented the OSPFv2 Prefix/Link Attributes Draft? Yes
2. Have you implemented the OSPFv2 Extended Prefix opaque LSA and OSPFv2 Extended Prefix TLV? Yes
3. If yes for #3, have you implemented the A and N flags which have been moved from the segment routing extensions? Not yet.
4. Have you implemented the OSPFv2 Extended Link opaque LSA and OSPFv2 Extended Link TLV? Yes
5. In your implementation, what applications utilize the OSPFv2 Extended Prefix/Link attributes (e.g., segment routing)? Segment Routing
6. Is the function in a generally available software release? Not yet. It will be in Huawei Versatile Routing Platform (VRP)
7. Have you tested interoperability with any other vendors? No
8. Would you be amenable to your data being included in an implementation survey document (complete with vendor identification)? Yes

3.4. Juniper

The Juniper responses to the survey questions are as follows:

1. Have you implemented the OSPFv2 Prefix/Link Attributes Draft? Yes
2. Have you implemented the OSPFv2 Extended Prefix opaque LSA and OSPFv2 Extended Prefix TLV? Yes
3. If yes for #3, have you implemented the A and N flags which have been moved from the segment routing extensions? Not yet.
4. Have you implemented the OSPFv2 Extended Link opaque LSA and OSPFv2 Extended Link TLV? Yes
5. In your implementation, what applications utilize the OSPFv2 Extended Prefix/Link attributes (e.g., segment routing)? Segment Routing

6. Is the function in a generally available software release? Not yet. It will be in JUniper Network Operating System (JUNOS).

7. Have you tested interoperability with any other vendors? No

8. Would you be amenable to your data being included in an implementation survey document (complete with vendor identification)? Yes

4. Security Considerations

This document reports the results of an OSPFv2 Prefix/Link Attributes implementation survey. As such, it does not introduce any security risks.

5. IANA Considerations

No IANA actions are required.

6. References

6.1. Normative References


6.2. Informative References

Appendix A. Acknowledgments

The RFC text was produced using Marshall Rose’s xml2rfc tool.

Thanks to Wim Henderickx, Greg Harkins, Peter Psenak, Eric Wu, and Shraddha Hegde for their responses to the survey.

Author’s Address

Acee Lindem
Cisco Systems
301 Midenhall Way
Cary, NC  27513
USA

Email: acee@cisco.com