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Carrying Routable IP Addresses in OSPF RI LSA
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Abstract

This document proposes two new TLVs within the body of the OSPF Router Information (RI) Opaque LSA, called Routable IPv4 Address TLV and Routable IPv6 Address TLV. Here the OSPF means both OSPFv2 and OSPFv3.

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Table of Contents

1. Introduction	2
1.1. Requirements Language	3
2. Terminology	3
3. Routable IPv4 Address TLV	3
4. Routable IPv6 Address TLV	3
5. Acknowledgements	3
6. IANA Considerations	3
7. Security Considerations	3
8. References	4
8.1. Normative References	4
8.2. Informative References	4
Authors' Addresses	4

1. Introduction

There are several situations where it is required for OSPF routers in one area to find correlations between routable IP addresses and capabilities of OSPF routers in another area. One example is the Entropy Label Capability (ELC) advertisement [I-D.xu-ospf-mpis-elic] across the OSPF domain. In this example, assume the ELC TLV originated by a router in one area is propagated to another area, those routers in the latter area need to find routable IP addresses of the router originating that ELC TLV before inserting the Entropy Label (EL) for packets going to the Label Switch Path (LSP) tunnel towards one of the above routable IP addresses. Another example is the S-BFD discriminator distribution [I-D.bhatia-ospf-sbfd-discriminator] across the OSPF domain. In this example, assume the S-BFD Discriminator TLV originated by a router in one area is propagated to another area, those routers in the latter area need to find routable IP addresses of the router originating that S-BFD Discriminator TLV so as to set up S-BFD sessions with that originating router.

However, in the OSPF Router Information (RI) Opaque LSA as defined in [RFC4970], which is used by OSPF routers to announce their capabilities, there is no such field for containing routable IP addresses of the originating router. Therefore, this document propose two new TLVs within the body of OSPF RI LSA, called Routable IPv4 Address TLV and Routable IPv6 Address TLV, which are used to carry routable IPv4 and IPv6 addresses respectively. Here the OSPF means both OSPFv2 and OSPFv3.

1.1. Requirements Language

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 2119 [RFC2119].

2. Terminology

This memo makes use of the terms defined in [RFC4970].

3. Routable IPv4 Address TLV

A new TLV within the body of the OSPF RI Opaque LSA, called Routable IPv4 Address TLV is defined to carry one or more routable IPv4 addresses of the router originating the RI LSA. The Type of this TLV is TBD, the Length is variable (multiple of 4), and the Value field contains one or more routable IPv4 addresses of the router originating the RI LSA. This TLV is applicable to OSPFv2 and for IPv4 Address Families (AFs) of OSPFv3 [RFC5838] within the body of the corresponding RI Opaque LSA. The scope of the advertisement MUST be domain-wide.

4. Routable IPv6 Address TLV

A new TLV within the body of the OSPFv3 RI Opaque LSA, called Routable IPv6 Address TLV is defined to carry one or more routable IPv6 global addresses of the router originating the RI LSA. The Type of this TLV is TBD, the Length is variable (multiple of 16), and the Value field contains one or more routable IPv6 global addresses of the router originating the RI LSA. This TLV is only applicable to OSPFv3. The scope of the advertisement MUST be domain-wide.

5. Acknowledgements

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6. IANA Considerations

This document includes a request to IANA to allocate two TLV type codes for the new RI LSA TLVs proposed in this document respectively.

7. Security Considerations

This document does not introduce any new security risk.

8. References

8.1. Normative References

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- [RFC4970] Lindem, A., Shen, N., Vasseur, JP., Aggarwal, R., and S. Shaffer, "Extensions to OSPF for Advertising Optional Router Capabilities", RFC 4970, July 2007.

8.2. Informative References

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