        Advertising Seamless Bidirectional Forwarding Detection (S-BFD)
                           Discriminators in IS-IS

Abstract

   This document defines a means of advertising one or more Seamless
   Bidirectional Forwarding Detection (S-BFD) Discriminators using the
   IS-IS Router CAPABILITY TLV.

Status of This Memo

   This is an Internet Standards Track document.

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   Internet Engineering Steering Group (IESG). Further information on
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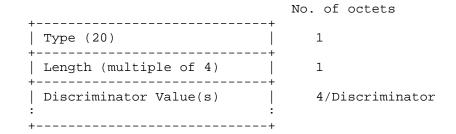   than English.

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1. Introduction

   [RFC7880] defines a simplified mechanism for using Bidirectional
   Forwarding Detection (BFD) [RFC5880]. This mechanism depends on
   network nodes knowing the BFD Discriminators that each node in the
   network has reserved for this purpose. The use of the Intermediate
   System to Intermediate System (IS-IS) [IS-IS] protocol is one
   possible means of advertising these discriminators.

   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. Encoding Format

   The IS-IS Router CAPABILITY TLV as defined in [RFC4971] will be used
   to advertise Seamless BFD (S-BFD) Discriminators. A new sub-TLV is
   defined as described below. S-BFD Discriminators sub-TLVs are
   formatted as specified in [RFC5305].

```
                                            No. of octets
             +----------------------------+
             | Type (20)                  |     1
             +----------------------------+
             | Length (multiple of 4)     |     1
             +----------------------------+
             | Discriminator Value(s)     |  4/Discriminator
             :                            :
             +----------------------------+
```

   The inclusion of an S-BFD Discriminators sub-TLV in a Router
   CAPABILITY TLV is optional. Multiple S-BFD Discriminators sub-TLVs
   MAY be advertised by an IS. How a given discriminator is mapped to a
   specific use case when multiple S-BFD Discriminators are advertised
   is out of scope for this document.

   S-BFD Discriminator advertisements MAY be flooded within an area or
   throughout the domain, using the procedures specified in [RFC4971].
   The appropriate flooding scope depends on the intended use of S-BFD.
   If S-BFD usage will be exclusively within a Level-1 area, then area
   scope is appropriate. If S-BFD usage will span different Level-1
   areas, then domain scope is appropriate.

3. IANA Considerations

   IANA has added a new sub-TLV in the "Sub-TLVs for TLV 242" registry.
   The registration is as follows:

      Value   Description
      -----   -------------------
      20   S-BFD Discriminators

4. Security Considerations

   Security concerns for IS-IS are addressed in [IS-IS], [RFC5304], and
   [RFC5310]. The new S-BFD Discriminators sub-TLV does not introduce
   any new security risks for IS-IS.

   Advertising the S-BFD Discriminators makes it possible for attackers
   to initiate S-BFD sessions using the advertised information. The
   vulnerabilities this poses and how to mitigate them are discussed in
   [RFC7880].

5. Normative References

   [IS-IS]   International Organization for Standardization,
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   [RFC4971]   Vasseur, JP., Ed., Shen, N., Ed., and R. Aggarwal, Ed.,
               "Intermediate System to Intermediate System (IS-IS)
               Extensions for Advertising Router Information", RFC 4971,
               DOI 10.17487/RFC4971, July 2007,
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   [RFC5304]   Li, T. and R. Atkinson, "IS-IS Cryptographic
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   [RFC5305]   Li, T. and H. Smit, "IS-IS Extensions for Traffic
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   [RFC5310] Bhatia, M., Manral, V., Li, T., Atkinson, R., White, R.,
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   [RFC7880] Pignataro, C., Ward, D., Akiya, N., Bhatia, M., and S.
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