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Definition of an IS-IS Link Attribute sub-TLV
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Status of this Memo

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Abstract

This document defines a sub-TLV called "Link-attributes" carried within the TLV 22 and used to flood some link characteristics.

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].

Table of Contents

1. Introduction

[IS-IS] specifies the IS-IS protocol (ISO 10589) with extensions to support IPv4 in [RFC1195]. A router advertises one or several Link State Protocol data units which are composed of variable length tuples called TLVs (Type-Length-Value).

[RFC3784] defines a set of new TLVs whose aims are to add more information about links characteristics, increase the range of IS-IS metrics and optimize the encoding of IS-IS prefixes.

This document defines a new sub-TLV named "Link-attributes" carried within the extended IS reachability TLV (type 22) specified in [RFC3784].

2. Link-attributes sub-TLV format

The link-attribute sub-TLV is carried within the TLV 22 and has a format identical to the sub-TLV format used by the Traffic Engineering Extensions for IS-IS ([RFC3784]): 1 octet of sub-type, 1 octet of length of the value field of the sub-TLV followed by the value field - in this case, a 16 bit flags field.

The Link-attribute sub-type is 19 (to be assigned by IANA) and has a length of 2 octets.

This sub-TLV is OPTIONAL and MUST appear at most once for a single IS neighbor. If a received LSP contains more than one Link-Attribute Sub-TLV, an implementation MAY decide to consider only the first encountered instance.

The following bits are defined:

Local Protection Available (0x01). When set, this indicates that the link is protected by means of some local protection mechanism (e.g [RFC4090]).

Link excluded from local protection path (0x02). When set, this link SHOULD not be included in any computation of a repair path by any other router in the routing area. The triggers for setting up this bit are out of the scope of this document.

3. Interoperability with routers non supporting this capability

A router not supporting the link-attribute sub-TLV will just silently ignore this sub-TLV.

4. IANA Considerations

IANA will assign a new codepoint for the link-attribute sub-TLV defined in this document and carried within TLV 22. Suggested value is 19 (to be assigned by IANA).

IANA is requested to create a registry for bit values inside the link-attributes sub-TLV. The initial contents of this registry will be:

Value	Name	Reference
0x1	Local Protection Available	[This Document]
0x2	Link Excluded from Local Protection	[This Document]

Further values are to be allocated by the Standards Action process defined in [RFC2434], with Early Allocation (defined in [RFC4020]) permitted.

5. Security Considerations

Any new security issues raised by the procedures in this document depend upon the opportunity for LSPs to be snooped and modified, the ease/difficulty of which has not been altered. As the LSPs may now contain additional information regarding router capabilities, this new information would also become available to an attacker. Specifications based on this mechanism need to describe the security considerations around the disclosure and modification of their information. Note that an integrity mechanism, such as one defined in [RFC3567] should be applied if there is high risk resulting from modification of capability information.

6. Acknowledgements

The authors would like to thank Mike Shand, Les Ginsberg and Bill Fenner for their useful comments.

7. References

7.1. Normative References

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[RFC4020] Kompella, K. and A. Zinin, "Early IANA Allocation of Standards Track Code Points", BCP 100, RFC 4020, February 2005.

7.2. Informative References

[RFC3567] Li, T. and R. Atkinson, "Intermediate System to Intermediate System (IS-IS) Cryptographic Authentication", RFC 3567, July 2003.

[RFC4090] Pan, P., Swallow, G., and A. Atlas, "Fast Reroute Extensions to RSVP-TE for LSP Tunnels", RFC 4090, May 2005.

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