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Homenet IS-IS Profile
draft-lamarter-homenet-isis-profile-02

Abstract

This (pointer) document describes the necessary bits and pieces of IS-IS that a homenet targeted implementation would need to implement.

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1. Introduction

Homenet, as seen by the IETF Homenet working group, operates as a set of IPv6 routers performing source/destination based routing. Since an arbitrary number of routers in an arbitrary dynamic topology is to be supported, a dynamic routing protocol is needed. This document outlines how to apply IS-IS for this.

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 [[RFC2119](#)].

2. Required specifications

The following (parts of) specifications MUST be implemented for a homenet IS-IS router:

Parts of ISO 10589-2002: [[IS-IS](#)]

- o [Section 6.1](#), Level 1 Intermediate System
- o [Section 6.2](#), bullet a) - broadcast subnetworks
- o [Section 6](#), remainder (6.3 - 6.8.4)
- o [Section 7](#), Level 1 IS function only
 - * exclude [Section 7.2.2](#) (replaced by wide metrics)
 - * exclude [Section 7.2.9](#) (Level 2 interactions)
 - * exclude [Section 7.2.10](#) (Partition repair)

- * exclude [Section 7.4](#) (Forwarding process), replaced by IPv6 forwarder behavior
- o Sections [8.2](#) and [8.4](#)
- o [Section 9](#), excluding PDU types specific to Level 2 operation
- o Sections [10.1](#) and [10.2](#)

Generally speaking, a homenet IS-IS implementation needs to operate in a network consisting purely of Level 1 Intermediate Systems.

The following updates to the IS-IS specification:

- o [[RFC5120](#)], M-ISIS: Multitopology Routing
- o [[RFC5303](#)], IS-IS 3-way Adjacency TLV
- o [[RFC5305](#)], IS-IS Extensions for Traffic Engineering
 - * wide metrics and IP prefix encoding
 - * Sub-TLVs 3, 9, 10, 11, 18 not required
- o [[RFC5308](#)], Routing IPV6 with IS-IS
- o [[I-D.liu-isis-auto-conf](#)], IS-IS Autoconfiguration
- o [[I-D.baker-ipv6-isis-dst-src-routing](#)], IS-IS IPv6 Source/Destination Routing
- o [[I-D.lamparter-isis-p2mp](#)], IS-IS Point to Multipoint operation

And, finally, IPv6 source/destination routing behavior as specified in [[I-D.ietf-rtgwg-dst-src-routing](#)].

3. Parameter choices

Most configuration parameters are specified in [[I-D.liu-isis-auto-conf](#)] as part of IS-IS autoconfiguration.

Homenet uses the following additional parameter choices:

- o IPv6 is routed in M-ISIS topology with MTID #2.
- o IPv4, if supported, is routed in the base topology (MTID #0).

4. Optional additions for IPv4 operation

Supporting IPv4 for backwards compatibility requires implementation of [[RFC1195](#)].

5. Security and Privacy Considerations

This document has no independent security or privacy concerns. Those in the referenced documents apply.

6. Acknowledgements

Juliusz Chroboczek pointed out the need for this document.

7. References

7.1. Normative References

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[7.2.](#) Informative References

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Sarikaya, B. and M. Boucadair, "Source Address Dependent Routing and Source Address Selection for IPv6 Hosts: Problem Space Overview", [draft-sarikaya-6man-sadr-overview-09](#) (work in progress), January 2016.

[Appendix A.](#) Change Log

(to be removed)

-00: July 2015

-01: October 2015

-02: April 2016; removed isis-over-ipv6

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