Purge Originator Identification TLV for IS-IS
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Abstract

At present an IS-IS purge does not contain any information identifying the Intermediate System (IS) that generates the purge. This makes it difficult to locate the source IS.

To address this issue, this document defines a TLV to be added to purges to record the system ID of the IS generating it. Since normal LSP flooding does not change LSP contents, this TLV should propagate with the purge.

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1. Introduction

The IS-IS [ISO 10589] routing protocol has been widely used in large-scale IP networks because of its strong scalability and fast convergence.

The IS-IS protocol floods purges throughout an area, regardless of which IS initiated the purge. If a network operator would like to investigate the cause of the purge, it is difficult to determine the origin of the purge. At present the IS-IS protocol has no mechanism to locate the originator of a purge. To address this problem, this document defines a TLV to be added to purges to record the system ID of the IS generating the purge.

2. 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].

3. Cases to Generate Purge Packet

In IS-IS there are three legitimate reasons for an IS to generate a purge:

1. An IS purges its own LSP.
2. A LSP owned by another IS ages out.
3. A new DIS is elected.

Field experience has observed several other circumstances where an IS can improperly generate a purge:

1. An implementation misunderstanding [ISO 10589] or predating TC1 generates a purge when it receives a corrupted LSP.
2. An implementation with bugs tries to purge one of its LSPs and makes a truly egregious mistake.
3. An implementation fails to retain the LSP header after purging while flooding is still in progress.
4. The Purge Originator Identification TLV

This document defines a TLV to be included in purges. This TLV carries the system ID of the IS generating the purge.

This allows ISs receiving purges to log the system ID of the originator. This makes it much easier for the network administrator to locate the origin of the purge and thus the cause of the purge. Similarly, this TLV is helpful to developers in lab situations.

The Purge Originator Identification TLV is defined as:

- CODE - XX (to be assigned)
- LENGTH - total length of the value field.
- VALUE - System ID of the Intermediate System that initiated the purge.

5. Security Considerations

If the proposed TLV is used in conjunction with IS-IS authentication mechanisms [RFC5304][RFC5310], the purge LSP is constructed by removing the original contents of the LSP, leaving only the LSP header, adding the Purge Originator Identification TLV and then adding the IS-IS authentication TLV. This document amends the behavior specified in [RFC5304] and [RFC5310].

6. IANA Considerations

RFC EDITOR NOTE: This section to be removed upon publication.

This document requests that IANA assign a code point for this TLV from the IS-IS 'TLV Codepoints Registry'.

7. Acknowledgments

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8. Normative References


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