S2L Name Identification for Point-to-Multipoint TE LSPs
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Abstract

One of the management requirements for point-to-multipoint (P2MP) Label Switched Paths (LSPs) in Multi-Protocol Label Switching (MPLS) and Generalized MPLS (GMPLS) networks is the ability to
identify source-to-leaf (S2L) sub-lsp by name. This document provides a minor extension to RSVP-TE for P2MP TE LSPs [RSVP-TE-P2MP] to signal name for S2L sub-lsp.

Conventions used in this document

In examples, "C:" and "S:" indicate lines sent by the client and server respectively.

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.

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1. Introduction

Session name attribute of the SESSION_ATTRIBUTE object [RSVP-TE] is widely used by the Service Providers to identify an LSP in network, usually for management operations. However, in the case of P2MP LSP, a Path message can be used to signal one or more S2L sub-LSPs. Session name attribute cannot be used to identify an S2L by name in a network. This is a considerable limitation for network management, as service providers like to use meaningful names not only at the LSP level, but also at the S2L level.

This document addresses the above-mentioned requirement by adding an optional object call

led S2L_ATTRIBUTE object to the sub-LSP descriptor define in [RSVP-TE-P2MP]. Specifically, it proposes to use the <<S2L_SUB_LSP>, [EXPLICIT_ROUTE]>, [S2L_ATTRIBUTE]> tuple to represents the S2L sub-LSP being signaled in the Path message.
The document defines "S2L name" as an attribute of S2L_ATTRIBUTE object. If needed, the S2L_ATTRIBUTE object can be extended to include other S2L scoped attributes.

2. S2L Attribute Object

The S2L_ATTRIBUTE object can optionally appear in a Path message as part of sub-LSP descriptor define in [RSVP-TE-P2MP]. Specifically, [RSVP-TE-P2MP] enhances path message to signal one or more S2L sub-LSPs by including the S2L sub-LSP descriptor list in the Path. This document extends the definition of S2L sub-LSP descriptor to optionally include S2L_ATTRIBUTE object as follows, where the syntax follows the augmented Backus-Naur Form (BNF) form.

\[
\langle \text{S2L sub-LSP descriptor} \rangle := \langle \text{S2L_SUB_LSP} \rangle \\
\quad [ \langle \text{P2MP SECONDARY_EXPLICIT_ROUTE} \rangle ] \\
\quad \quad [ \langle \text{S2L_ATTRIBUTE} \rangle ]
\]

S2L_ATTRIBUTE object has a class number TBA by IANA (of type 11bbbbbb), C-Type of TBD. The format is given below.

0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|     Name Length    |      Flags    |               Reserved        |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|                                                               |
//     S2L sub-LSP Name     (NULL padded display string)     //
|                                                               |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+

Where,

Name Length:

The length of the display string before padding, in bytes.
S2L sub-lsp Name:

A null padded string of characters communicating a meaningful name associated with the S2L.

Reserved (Res)

This field is reserved. It MUST be set to zero on transmission and MUST be ignored on receipt.

2.1. Path Message Processing

As specified in it [RSVP-TE-P2MP] it is possible to signal S2L sub-LSPs for a given P2MP LSP in one or more Path messages and a given Path message can contain one or more S2L sub-LSPs. In either case, the < [EXPLICIT_ROUTE] <S2L_SUB_LSP> [S2L_ATTRIBUTE] > or the < [P2MP SECONDARY_EXPLICIT_ROUTE] <S2L_SUB_LSP> [S2L_ATTRIBUTE] > tuple is used to specify an S2L sub-LSP, where S2L sub-lsp name is specified in the S2L_ATTRIBUTE object. The session name field of the SESSION_ATTRIBUTE object can optionally be used to describe name of the P2MP LSP, as described in [RSVP-TE]. Rest of the handling of <S2L sub-LSP descriptor> follows the procedure specified in [RSVP-TE-P2MP].

3. Security Considerations

This document does not introduce any new security issues above those identified in [RSVP-TE], [RFC3473], [RFC4206] and [RSVP-TE-P2MP].

4. IANA Considerations

New Class Number and type for S2L_ATTRIBUTE object defined in this document needs to be assigned.

5. References

5.1. Normative References


5.2. Informative References


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