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Signaling Maximum SID Depth using Border Gateway Protocol Link-State
draft-tantsura-bgp-ls-segment-routing-msd-00

Abstract

This document discusses use of BGP-LS to expose node and/or link on a node MSD "Maximum SID Depth" to a centralized controller (PCE/SDN).

Status of This Memo

This Internet-Draft is submitted in full conformance with the provisions of BCP 78 and BCP 79.

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1. Introduction

When Segment Routing tunnels are computed by a centralized controller, it is crucial that the controller knows MSD "Maximum SID Depth" of the node or link SR tunnel exits over, so it doesn't download a path with SID (label stack) of depth more than the node or link configured is capable of imposing.This document describes how to use BGP-LS to expose the MSD of the node or link configured to a centralized controller.

1.1. Conventions used in this document

1.1.1. Terminology

BGP-LS: Distribution of Link-State and TE Information using Border Gateway Protocol

MSD: Maximum SID Depth

PCC: Path Computation Client

PCE: Path Computation Element

PCEP: Path Computation Element Protocol

SID: Segment Identifier

SR: Segment routing

1.1.2. Requirements Language

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "NOT RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in [RFC2119].

2. Problem Statement

In existing technology only PCEP has extension to signal the MSD (SR PCE Capability TLV/ METRIC Object as defined in [I-D.ietf-pce-segment-routing],If PCEP is not supported by the node (head-end of the SR tunnel) controller has no way to learn the MSD of the node/link configured.

3. MSD supported by a node

Node MSD is a number in the range of 0-254. 0 represents lack of ability to push MSD of any depth, any other value represents that of the node.

Node MSD is encoded in the Opaque Node Attribute TLV, as defined in [I-D.ietf-idr-ls-distribution]

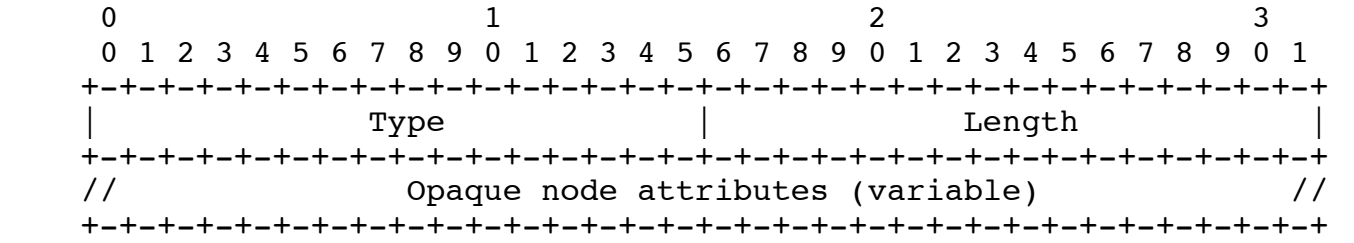

Figure 1: Opaque Node attribute format

4. MSD supported on a link

Link MSD is a number in the range of 0-254.The value of 0 represents lack of ability to push MSD of any depth, any other value represents that of the link.

Link MSD is encoded in the Opaque Link Attribute TLV, as defined in [I-D.ietf-idr-ls-distribution]

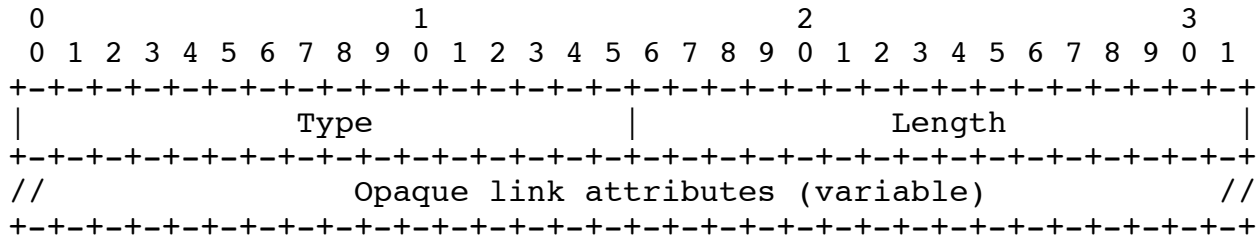

Figure 2: Opaque link attribute format

5. IANA Considerations

TBA

6. Security Considerations

This document does not introduce security issues beyond those discussed in [I-D.ietf-idr-ls-distribution]

7. Acknowledgements

We like to thank Nikos Triantafillis for the valuable comments.

8. References

8.1. Normative References

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8.2. Informative References

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