Signaling MSD (Maximum SID Depth) using ISIS

draft-tantsura-isis-segment-routing-msd-01

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For a controller/PCE to know various nodes/links MSD "Maximum SID Depth" of the node or link where SR tunnel exits over – ingress node/node expanding binding SID

A controller/PCE should never use a tunnel with a label depth exceeding that supported by a node/link

- Ingress node != BGP-LS or PCEP speaker

PCEP SR extensions [I-D.ietf-pce-segment-routing] has defined MSD, to signal in SR PCE Capability TLV, METRIC Object, however requires:

- PCEP session with the node
- Signals only node MSD

With MSD values present in LSDB it’s advertised through BGP-LS as defined in [I-D.tantsura-idr-bgp-ls-segment-routing-msd]

Similar solution for ospf is described in [I-D.tantsura-ospf-segment-routing-msd]

Do not confuse with RLD - Readable Label Depth as defined in [I-D.ietf-mpls-spring-entropy-label]
How?

- **Node MSD TLV**

  ```
  0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
  +--------------------------+
  |    Type       |    Length     |
  +--------------------------+
  |                MSD Value                                      |
  +--------------------------+
  ```

  - **Type**: request to IANA to allocate a sub-TLV type code from ISIS Router Capability TLVs Registry
  - **Value**: 0-254.
    - 0  ➔ Lack of ability to push MSD of any depth
    - Value represented SHOULD be the lowest value that node can support
Link MSD sub-TLV

<table>
<thead>
<tr>
<th>Type</th>
<th>Length</th>
<th>MSD Value</th>
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Type: request to IANA to allocate a sub-TLV type code from IS extended reachability TLV (22) and MT IS TLV (222) registry.

Value: 0-254.
- 0 → Lack of ability to push MSD of any depth
- This sub-TLV is optional
Next Steps:

- WG Adoption?

Thank you!