IGP Extensions for Advertising Hop-by-Hop Options Header Processing Action

draft-wang-lsr-hbh-process-00

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This document defines a mechanism to signal the configured processing action of the Hop-by-Hop Options header and supported services at node and/or link granularity using IS-IS, OSPFv2 and OSPFv3. Such advertisement can be useful for entities to generate a topology based on the HbH processing action advertisement and compute paths for a specific service carried by the HbH Options header.
Define the information of **HbH processing action** formed of a 8-bit Action Flag field, a 8-bit Max EH Len field, and a 16-bit Services Flag.

- **Action Flag:** A 8-bit field. The highest-order 3-bit indicates the processing action, i.e., 000 - drop packets; 001 - dispatch to control plane; 010 - forward, skip to Next Header; 011 - forward, ignoring all extension Options header; 100 - examine and process.

- **Max EH Len:** A one octet field. The maximum length of the Extension Header in 8-octet units can be examined and processed at node or link granularity. The definition is same as the Next Header Length in [RFC8200].

- **Services Flag:** A 16-bit bitmap.

  - O (IOAM Trace Option) is a one-bit flag. The O flag is set to 1 if the IOAM Trace Option is supported at node or link granularity.
  - A (Alternate Marking) is a one-bit flag. The A flag is set to 1 if the Alternate Marking method is supported at node or link granularity.
  - R - reserved bits for future use. These flags MUST be zeroed on transmit and ignored on receipt.
Signaling Processing Action using IS-IS

• **Node Processing-Action Sub-TLV** is extended to IS-IS Router CAPABILITY TLV to carry the action of the router originating the IS-IS Router CAPABILITY TLV.

  
<table>
<thead>
<tr>
<th>0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1</th>
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<tbody>
<tr>
<td>Type</td>
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<td>Node-Processing-Action</td>
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  o **Node-Processing-Action**: A 4-octet field, which is same as Processing Action defined in the previous slide.

• **Link Processing-Action Sub-TLV** is extended to TLVs 22, 23, 25, 141, 222, and 223 to carry the action of the interface associated with the link.

  
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  o **Link-Processing-Action**: A 4-octet field, which is same as Processing Action defined in the previous slide.
Signaling Processing Action using OSPF

- **Node Processing-Action TLV** is extended to the OSPF RI Opaque LSA to carry the action of the router originating the RI LSA.

- **Link Processing-Action Sub-TLV** is defined to carry the action of the interface associated with the link.
  - For OSPFv2, the Link-level Processing-Action is advertised as an optional sub-TLV of the **OSPFv2 Extended Link TLV**.
  - For OSPFv3, the Link-level Processing-Action is advertised as an optional sub-TLV of the **E-Router-LSA TLV**.
Next Steps

- Comments are welcome
- Refine the document accordingly

Thank you