ISIS Extensions in Support of Inter-Autonomous System (AS) MPLS and GMPLS Traffic Engineering

draft-chen-isis-rfc5316bis-01.txt

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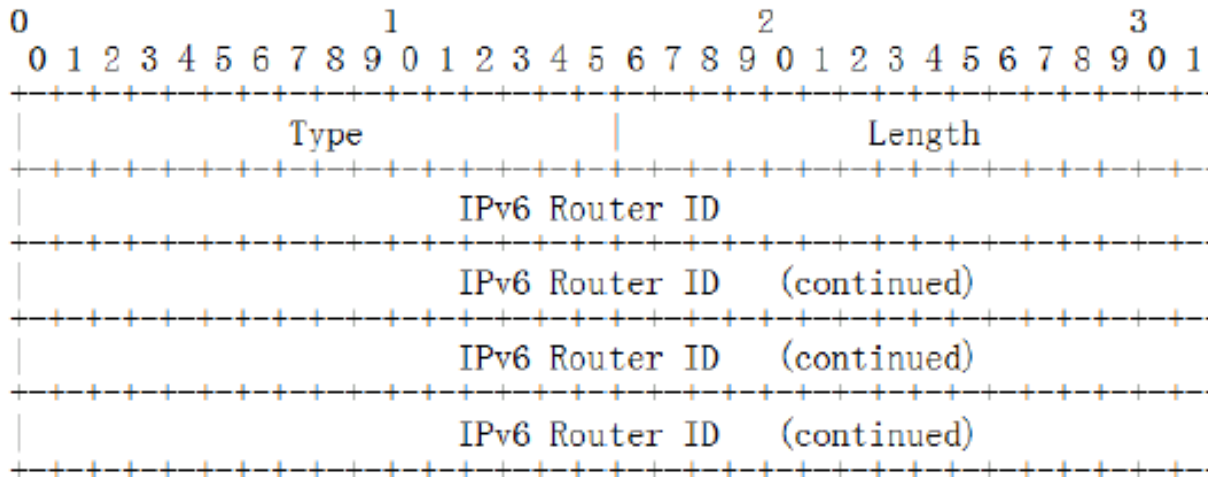
IETF-96 Jul, 2016, Berlin

Problem Statement

- Inter-AS reachability TLV (141)

```
4 octets of Router ID
3 octets of default metric
1 octet of control information, consisting of:
    1 bit of flooding-scope information (S bit)
    1 bit of up/down information (D bit)
    6 bits reserved
1 octet of length of sub-TLVs
0-246 octets of sub-TLVs, where each sub-TLV consists of a sequence of:
    1 octet of sub-type
    1 octet of length of the value field of the sub-TLV
    0-244 octets of value
```

- The 4-octets Router ID is designed to indicate the source of the TLV

- RFC5316 does not specify how to fill this field when:

    - No 4-octets Router ID is assigned, or
    - The node who generates the TLV does not support IPv4

- RFC5316 is not clear on the relationship between this Router ID and the TE Router ID [RFC5305]

IPv6 Router ID sub-TLV

- Add a new IPv6 Router ID sub-TLV to Inter-AS reachability TLV
  - Similar mechanism to TLV242

```
 0                   1                   2                   3
 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
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|              Type              |              Length           |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|                         IPv6 Router ID                         |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|                   IPv6 Router ID    (continued)               |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|                   IPv6 Router ID    (continued)               |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|                   IPv6 Router ID    (continued)               |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
```

New Text for Router ID of TLV141

"The Router ID field of the inter-AS reachability TLV is 4 octets in length, which contains the IPv4 Router ID of the router who generates the inter-AS reachability TLV. *The Router ID SHOULD be identical to the value advertised in the Traffic Engineering Router ID TLV [RFC5305]. If no Traffic Engineering* Router ID is assigned, the Router ID SHOULD be identical to an IP Interface Address [RFC1195] advertised by the originating IS. *If the originating node does not support IPv4, then the reserved value 0.0.0.0 MUST be used in the Router ID field and the IPv6 Router ID sub-TLV MUST be present in the inter-AS reachability TLV.*"

Next step

- WG adoption?