Link Scoped IPv6 Multicast Addresses

draft-ietf-ipv6-link-scoped-mcast-04.txt

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Open issues from WGLC

- The wg last call ended on Nov. 4, 2003
- Pekka Savola raised the following two issues :
  - Conflicts with the (reserved) SSM address range, and
  - Its applicability and application scenario

Issue 1

- If an SSM implementation checks for FF3x::/32, not FF3x::/96, the other nodes not implementing this spec. will mis-interpret as SSM addresses, since this spec. uses the reserved field in a such a fashion, that plen=0 [RFC 3306].

Address format and example

- Unicast-Prefix based Addresses [RFC 3306]

```
|   8    | 4  | 4  |  8  |  8  |      64       |       32      |
+--------+----+----+-----+-----+---------------+---------------+
|11111111|00PT|scop| rsvd| plen| network prefix |    group ID   |
+--------+----+----+-----+-----+---------------+---------------+
```

- Link Scoped Multicast Addresses [Our current format – 04.txt]

```
|   8    | 4  | 4  |     16     |       64       |       32      |
+--------+----+----+------------+----------------+---------------+
|11111111|00PT|scop|  reserved  |  Interface ID  |    group ID   |
+--------+----+----+------------+----------------+---------------+
     scop <= 2 and reserved MUST be 0
```

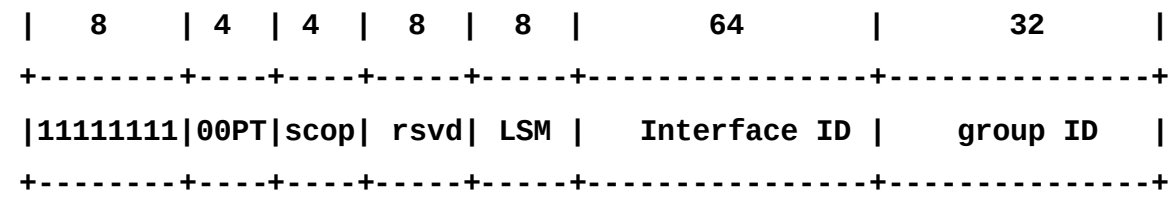
E.g, if link-local unicast address = FE80::a12:34ff:fe56:7890,
link scoped mcast addresses = FF32:0:a12:34ff:fe56:7890::/96
It could be *mis-understood* as SSM addresses (FF32::/32)

Proposed Resolution

- Change the address format a little bit to distinguish SSM and Link scoped multicast addresses
- We got 2 choices
  - #1. Update plen field (of RFC 3306) or
  - #2. Use reserved field (of RFC 3306)

Choice #1

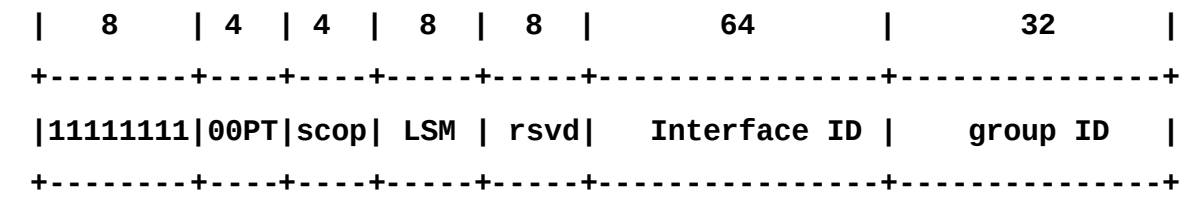
- Update plen field in [RFC 3306] - LSM



  - LSM (plen of RFC 3306) field MUST be 1111 1111, while plen of RFC 3306 MUST NOT be greater than 64.
  - E.g, Link scoped mcast addresses = FF32:00ff:a12:34ff:fe56:7890::/96.
    - It can be distinguished from SSM - FF32::/32

Choice #2

- Define reserved field in [RFC 3306] - LSM



  - LSM field (rsvd of RFC 3306) MUST be 0000 0001, while rsvp of RFC 3306 is 0000 0000.
  - E.g, Link scoped mcast address = FF32:0100:a12:34ff:fe56:7890::/96.
    - This can be distinguished from SSM - FF32::/32

Discussion on issue 1

- This issue can be resolved
- Our preference is choice 1,
  - because it is the simplest way without any new definition of fields

Discussion on issue 2

- Why this spec ?
  - An extension of Unicast-Prefix based Addresses [RFC 3306] for Link Scoped
  - Each node can generate unique multicast addresses - /96 automatically without any fear of conflicts
    - Source discovery, etc. are out of scope in this draft
- Applicability
  - It is preferred to use this method rather than [RFC 3306], for scope <= 2.
  - It goes well with nodes supplying link scoped multicast services in a zeroconf/serverless environment (especially, multi-link subnet, etc.).

Example of app scenario

- Multicast source side
  - Link-local address
    - FE80::a12:34ff:fe56:7890
  - Predefined/static group id
    - Channel 1 -> 1
  - Source can get unique multicast addresses - /96
    - FF32:00ff:a12:34ff:fe56:7890::/96
  - Session creation
    - FF32:00ff:a12:34ff:fe56:7890::1
- Multicast receiver side
  - Predefined/static group id
    - Channel 1 -> 1
  - Source discovery
    - LLMNR + predefined group id
  - Join
    - FF32:00ff:a12:34ff:fe56:7890::1

Summary

- Issue #1,
  - If agreed on the change, we'll publish -05 after IETF-60
- Issue #2,
  - We have a real/well-implemented application and scenarios
  - But, authors think it is out of scope in this draft, since it is very application-dependent.

- If there is an consensus, after revision (-05), go the IESG.