IPv6 Neighbor Discovery Multicast Address Listener Registration

draft-ietf-6lo-multicast-registration

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IETF 115

London
6LoWPAN ND (IPv6 Stateful Address Autoconfiguration)

**RFC 6775** (original 6LoWPAN ND)
Defines ARO for registration and DAD operations for stateful AAC

**RFC 8505** (Issued 11/2018)
The protocol agnostic registration for ULA/GUA for proxy ND and routing services
Analogous to a Wi-Fi association but at Layer 3: a deterministic and query-able state for all addresses

**RFC 8929** (Issued 11/2020)
Federates 6lo meshes over a high-speed backbone
ND proxy analogous to Wi-Fi bridging but at Layer 3

**RFC 8928** (Issued 11/2020)
Protects addresses against theft (Crypto ID in registration)

**draft-ietf-6lo-multicast-registration**
Extends RFC 8505 for multicast and anycast

**draft-thubert-6lo-prefix-registration**
Extends RFC 8505 for prefixes

**draft-thubert-6lo-unicast-lookup**
Provides a 6LBR on the backbone to speed up DAD and lookup
Coexistence with classical ND
Changes in `draft-ietf-6lo-multicast-registration` since IETF 114

- Moved from 7 to 11, introduced terminology
- “Update RFC 6550” beefed up,
  - discussion on merging different sources vs lifetime and ROVR
- Freshness comparison only from the same source
- New P field instead of flags (though same binary) -> next slide
- Use “subscription” instead of “registration” for A and M
- Updated Consistent Uptime Option; (in vs separate) still not resolved, kept in -> next slide
Consistent Uptime Option

This specification introduces a new option that characterizes the uptime of the sender. The option may be used by routers in RA messages and by any node in NS, NA, and RS messages. It is used by the receiver to infer whether some state synchronization might be lost, e.g., due to reboot.

```
<table>
<thead>
<tr>
<th>S</th>
<th>U</th>
<th>flags</th>
<th>NSSI</th>
<th>Peer NSSI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>
```

```
<table>
<thead>
<tr>
<th>Type</th>
<th>Length</th>
<th>Exponent</th>
<th>Uptime Mantissa</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
```

```
| S|U|   flags   |          NSSI         |     Peer NSSI         |
|---|---------|-----------------------|-----------------------|
| 0|1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 |                       |
```

```
<table>
<thead>
<tr>
<th>Type</th>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
```

```
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
```

Peer NSSI is valid
Sender sleeper
Node State
Sequence Information
Last received NSSI from peer
P Field: Adding Room For Prefix Registration

P is a new 2-bits field in EARO, DAR, and RTO

Turning the A and M flags into a field frees up one value:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Registration for a Unicast Address</td>
<td>This RFC</td>
</tr>
<tr>
<td>1</td>
<td>Registration for a Multicast Address</td>
<td>This RFC</td>
</tr>
<tr>
<td>2</td>
<td>Registration for an Anycast Address</td>
<td>This RFC</td>
</tr>
<tr>
<td>3</td>
<td>Unassigned</td>
<td>This RFC</td>
</tr>
</tbody>
</table>

For Prefix Registration

Was: M flag

Was: A flag

Reserved

For Prefix Registration
Next steps

• No news from 6MAN
• WGLC as is?