Neighbor Discovery Unicast Lookup

draft-thubert-6lo-unicast-lookup

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IETF 112

Virtual

6LoWPAN ND (IPv6 Stateful Address Autoconfiguration)
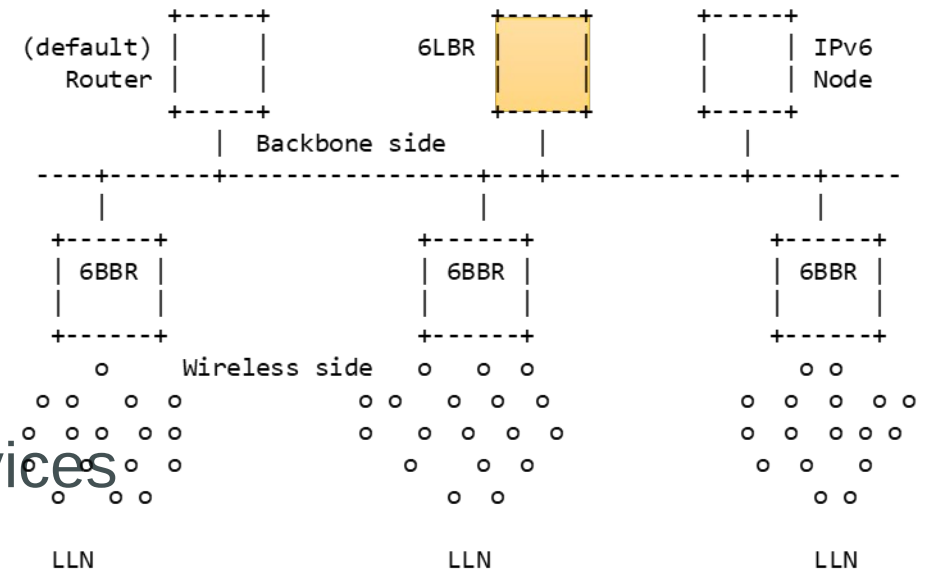
- RFC 6775 (original 6LoWPAN ND)
  - Defines ARO for registration and DAD operations for stateful AAC
- RFC 8505 (extended 6LoWPAN ND)
  - Extends ARO, updates the registration procedure
  - Allows registering to network services inc. proxy
- RFC 8928 (Address Protection for ND)
  - Secures ownership and enables SAVI
- RFC 8929 (Backbone Router – proxy ND)
  - Defines a proxy ND operation. Updates EDAR to transport ND options such as SLLAO.
- draft-thubert-6lo-unicast-lookup (Unicast Address lookup on backbone)
  - Allows the 6LBR to respond to lookups and saves broadcasts
- draft-ietf-6lo-multicast-registration (Anycast and Multicast Address Registration)
  - Registers anycast and multicast addresses (in addition to unicast per RFC 8505

Changes in draft-thubert-6lo-unicast-lookup

- Draft published at 6lo in 2019

- Circulated at 6MAN

- Failed to raise interest

- Note that this is not maintenance but new feature

- Republished as 01 at 6lo

- Suggestion to work it out here since we did all the work so far.

Draft operation

- EDAR is extended by RFC 8929 to transport SLLA

- An abstract 6LBR is placed on backbone
  - Maintains registration for unicast and anycast IPv6@
  - Contains ROVR and LLA(s) associated with IPv6@
  - learns SLLA from NS(EARO) and EDAR
  - Answers DAD requests (EDAR/EDAC)
  - New: Provides unicast Address Mapping services

- New Address Mapping messages
  - can have scope > link for off-link query
  - Unicast link-scope NS/NA can also be used

```
                         +-----+          +-----+     +-----+
(default) |     |          6LBR |     |     |     | IPv6
Router    |     |               |     |     |     | Node
          +-----+          +-----+     +-----+
          |       Backbone side     |            |
----+-------+-----------------+---+----------+----+-----
    |                         |             |
+------+              +------+        +------+
| 6BBR |              | 6BBR |        | 6BBR |
|      |              |      |        |      |
+------+              +------+        +------+
   o      Wireless side  o   o  o         o o
 o  o   o  o          o o  o  o o  o     o o  o o
  o  o  o o  o         o  o  o  o  o     o  o  o  o
o  o  o                  o    o  o       o  o  o o
   o  o                   o  o             o o

  LLN                    LLN              LLN
```

draft-thubert-6lo-unicast-lookup-01

Next steps

- Explain 6LBR is abstract
  - can be a distributed database
  - E.g., draft-thubert-bess-secure-evpn-mac-signaling

- Reference [draft-ietf-6lo-multicast-registration](#)
  - For anycast address registration