Neighbor Discovery Unicast Lookup

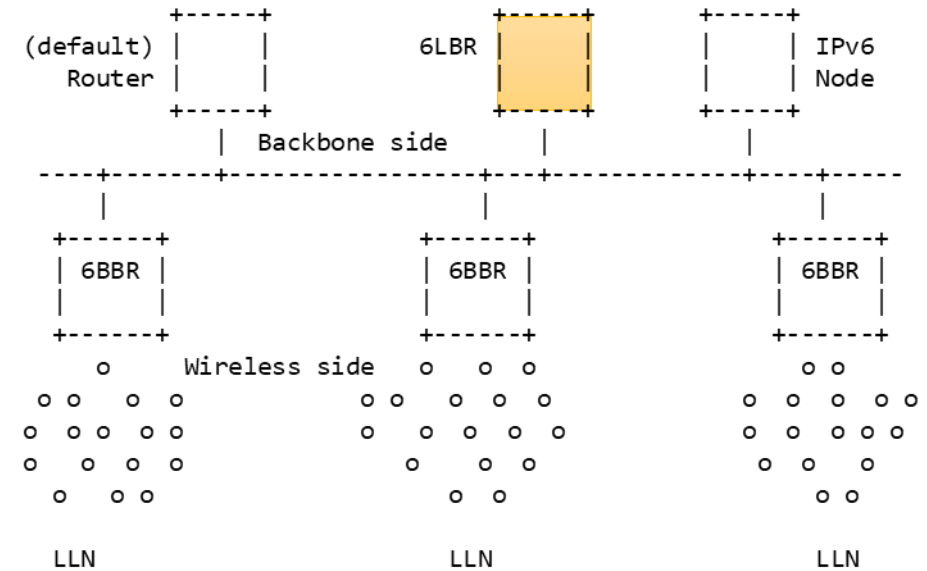**draft-thubert-6lo-unicast-lookup**

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IETF 113

Remote

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

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

- New status "not found"

```
              +-----+          +-----+       +-----+
(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

 LLN                            LLN               LLN
```

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

- Since IETF 112
  - Updated to reference draft-ietf-6lo-multicast-registration for anycast address registration

- Been Quite stable… Adopt?

To Dos

- Explain 6LBR is abstract, can be a distributed database
    - E.g., draft-thubert-bess-secure-evpn-mac-signaling using BGP
    - Or RFC 8929 using IPv6 ND