RFC 6775 Update

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Unmet expectations

- Solicited node multicast requires highly scalable L2 multicast

  IEEE does not provide it => turns everything into broadcast

  IPv6 ND appears to work with broadcast on 802.1 fabrics up to some scale ~10K nodes

- IPv6 ND requires reliable and cheap broadcast

  Radios do not provide that => conserving 802.1 properties over wireless is illusory

  RFC 4862 cannot operate as designed on wireless

  Address uniqueness is an unguaranteed side effect of entropy

- 802.11 expects proxy operation and broadcast domain separation

  802.11 provides a registration and proxy bridging at L2

  Requires the same at L3, which does not exist

  Implementations provide proprietary techniques based on snooping => widely imperfect

  ⇒ RFC 6775 solves the problem for DAD in one LL

  ⇒ This update enable establishing proxy services directly (ND for now), over a LLN, across multiple LLNs

What are the 6LoWPAN ND extensions?

Provide for draft-thubert-6lo-rfc6775-update-reqs

- **draft-ietf-6lo-rfc6775-update**
  - Simplifies the protocol (no DAR/DAC for LL, no secondary NC)
  - Enables proxy registration
- **draft-ietf-6lo-ap-nd**
  - Protects addresses against theft (Crypto ID in registration)
- **draft-ietf-6lo-backbone-router**
  - Federates 6lo meshes over a high speed backbone
  - ND proxy that mimics 802.11 association but at Layer 3

RFC 6775 update

Extended ARO option moved in rfc6775_update
    Add TID field to support registration mobility
    Same as efficient ND, operation based on RFC 6550

Proxy registration enabled by rfc6775_update
    6LBR may register on behalf of 6LN in mesh environment
    Registering the target as opposed to source address

6LoWPAN ND update

- ## 06 published June 21, 2017

- ## Addresses https://www.ietf.org/proceedings/98/minutes/minutes-98-6lo-00.txt

  - New section 9. Privacy Considerations

  - Cleaned up text , e.g. regarding RPL

    - Removed the TID cycling rules based on RPL; missing?

    - Piggy back refresh DAR in DOA is gone -> separate draft? RECOMMENDED to support 6LoWPAN Capability Indication option (6CIO) from RFC 7400

- ## Added Status 10 Incorrect proof to support AP-ND

- ## Implementation exists. Passed WGLC.

What's next for 6LoWPAN ND update?

WG Last call complete
- got private comments, asked to publish on list
- May need to restore some pointers to RFC 6550
- Extend WGLC time?