IPv6 Addressing and Link Types in NETLMM

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per-MN subnet

- WG consensus for IPv6
- Advertize a per-MN subnet
  - Used for SLAAC (A=1) and on-link determination (L=1)
- Issue 1: Multicast RA on shared links
  - Unicast RA sent to RS's source link local address
    - Source of RS MUST be link-local address (DNAv6)
  - Or Multicast RA sent to RS's tentative source link layer address
    - Tentative SLLAO SHOULD be included (DNAv6)

per-MN subnet (2)

- Issue 2: Discovery of on-link neighbors
  - Two MNs attached to same shared link
  - Possible that MNs discover each others and communicate directly (without AR)
    - Happens because ND traffic is sent to Sollicited-node or All-nodes multicast addresses
    - MN discovers a neighbor when it receives multicast ND message
  - Communication will fail when one MN attaches to different AR
  - Reachability of MN address gets restricted to link scope
    - Not a problem for link-local since their scope is link
    - Problem for global address whose reachability should be ensured
      - Communication between MNs will fail until NCE expires

Domain-wide address uniqueness

- Required on point-to-point links
  - Between {MN_i, MAG_1, … MAG_n} for given i
- Required on shared links
  - Between {MN_1,… MN_m, MAG_1, … MAG_n}
- Link change
  - But MN subnet prefix does not change DNA will conclude link did not change
  - → no DAD after link change

→ Issue 3: Possible address collision with new on-link neighbors (i.e. MAGs, and MNs when link is shared)

Enforce domain-wide address uniqueness

- Guaranteed for global addresses since per-MN prefix
- Required for link-local addresses
- On point-to-point links:
  - Configure same link-local address on each MAG of a domain, or
  - MAG defends other MAGs link-local addresses on their behalf
    - Proxy ND
    - Need support from NETLMM protocol (learning other MAGs addresses, SEND support)
- On shared links
  - MAG defends other MAGs and MNs link-local addresses on their behalf
    - Proxy ND
    - Need support from NETLMM protocol (learning other MAGs and MNs addresses, SEND support)

Shared link support

- Shared link turned into point-to-point link
  - Solves multicast RAs issue with per-MN prefix model
  - Use VLANs
  - (Disable bridging of frames by 802.11 APs)
- Support for shared link L2?
  - Has issues:
    - Issue 1: Multicast RA, solution is DNAv6
    - Issue 2: Discovery of neighbors, no solution
    - Issue 3: Domain-wide address uniqueness requires NETLMM protocol support

Time to discuss things

- **Do we assume DNAv6?**
- **Do we want to suport shared links?**
- **…**