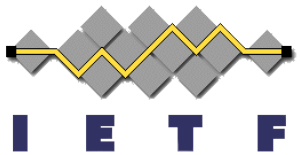
Evolving Source Address Selection Rules for Mobility Awareness: IPv6 Prefix Mobility Management Properties

draft-korhonen-dmm-prefix-properties-01

draft-liu-dmm-address-selection-01



Jouni Korhonen, Barasavaraj Patil, Sri Gundavelli, Dapeng Liu, Pierrick Seite

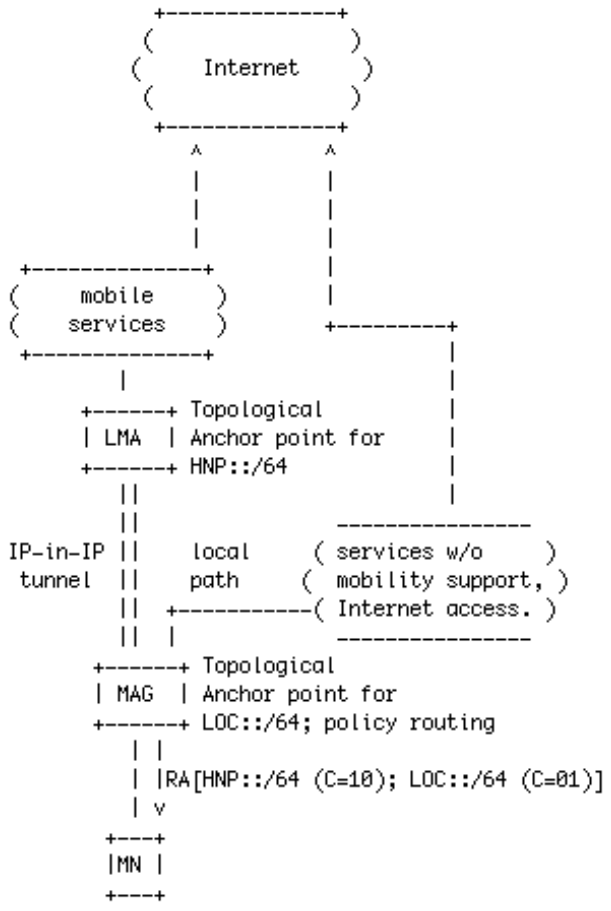
DMM WG, IETF#83

Objective

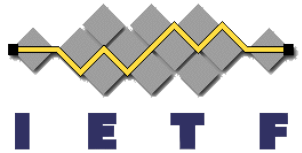
- Can we evolve the source address selection for mobility awareness ? Help the end host to select “the proper” source address for its communication.
- Allow end hosts to select between prefixes/ addresses that have either:
  - **Anchoring provided by the network** -> mobility provided within the system architecture limits.
  - **No anchoring guarantees** -> for local usage, probably not for long lived sessions.
- Aims for charter’s “..managing the use of care-of versus home addresses in an efficient manner for different types of communications.”

Example Use Case: Offloading, Local Resources and Dynamic Anchoring

- Local prefix (LOC::/64) topologically under MAG's control.
- Traffic using local prefix bypasses LMA i.e. MAG does not tunnel it to the LMA.
- The LMA anchored prefix (HNP::/64) has macro mobility.
- Prefix properties ('C' flags) inform the end host about the anchoring properties of the prefix.
- IP stack and programming APIs make use of prefix coloring:
  - Local prefix is preferred over LMA anchored prefix.
  - Prefix with no properties still preferred over LMA anchored prefix.



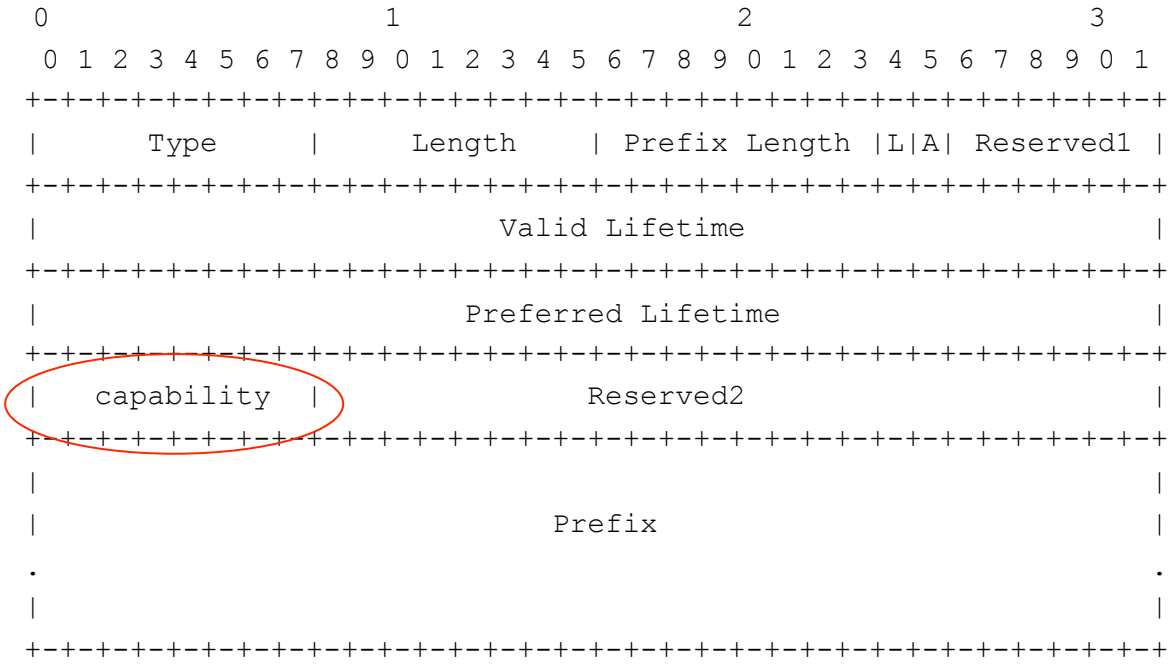
Requirements and gap considerations



- Req: A host needs to distinguish between prefixes that have macro mobility provided by the network vs. those that are local to an access router.
- Analysis: RFC4861/4862 & SLAAC has no existing method to signal such information to the end host. Some logic could be build using prefix lifetimes (infinite vs. short lifetime).. but these do not relate to mobility i.e. semantics differ.
- Gap: Explicit prefix “anchoring/coloring” property information indication is missing. Extension to e.g. RFC4861 PIO would fill the gap.

Extending PIO Option (RA Message)

- The Prefix Information Option in the IPv6 RA message can be updated to use the reserved flags for including the prefix property/capability (to be managed under IANA name space).



Questions? Comments?

- Consider as a problem the WG to work on?