

Extended home link support for DSMIP6

draft-premec-mext-extended-home-link

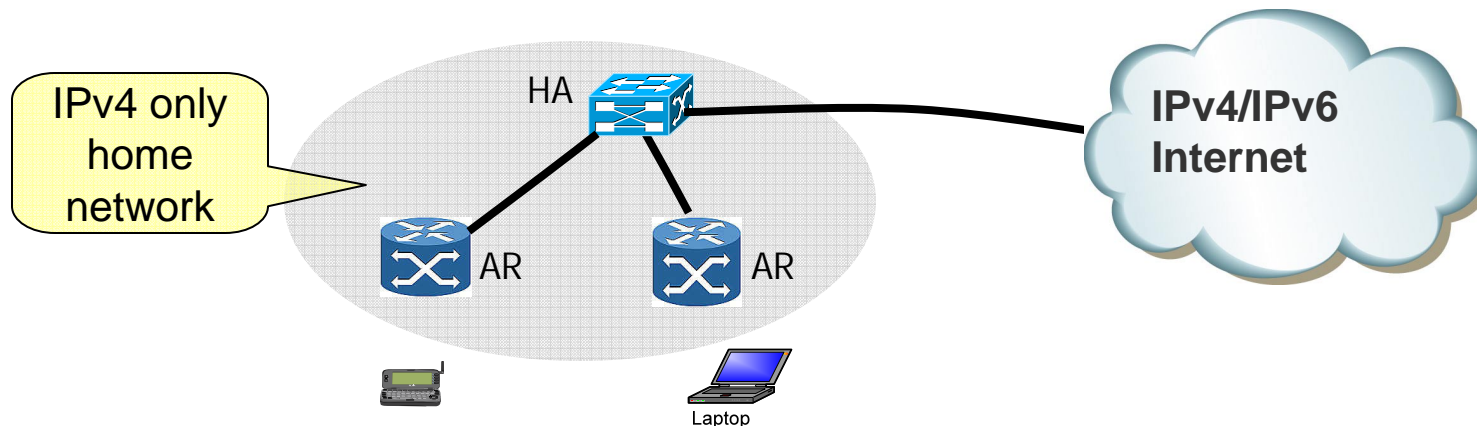
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Motivation 1/2

DSMIP6 spec requires that the home link provides dual stack support.

There could be deployments where:

- the home network is not yet dual stack enabled
- but is connected to the dual stack internet
- this may be the case in some 3GPP deployments



According to the DSMIP6 spec, the MN would have to treat such IPv4-only home network as a foreign network:

- the MN would need to register with the HA even when at home
- as a consequence there would be a tunnel overhead on the home link

Motivation 2/2

The work item to enable the single stack home network for DSMIPv6 is already part of the next charter:

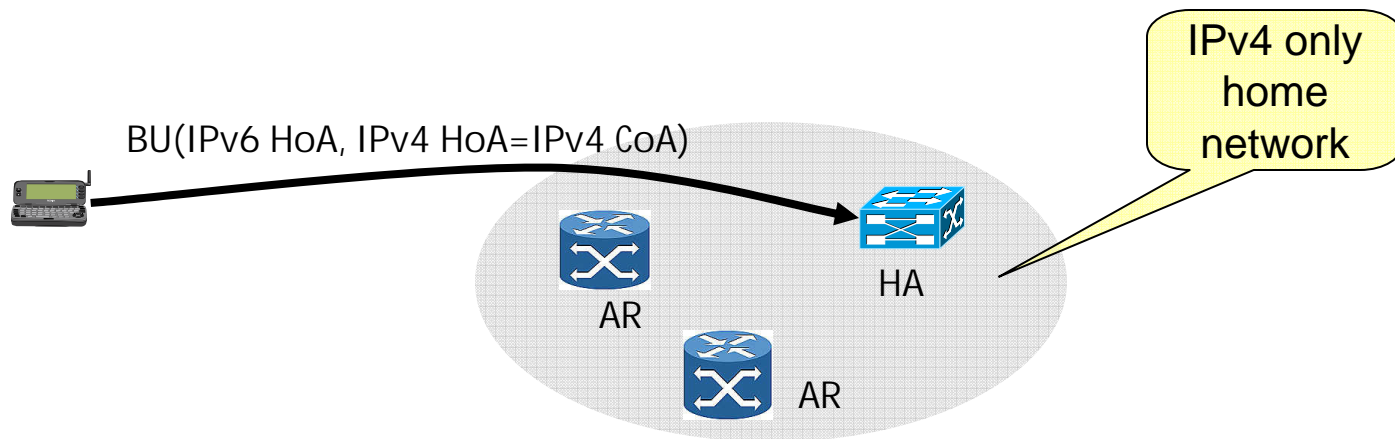
charter item A.9:

Extended DSMIPv6 Home Network Support: DSMIPv6 assumes the home network to be dual stack providing simultaneous IPv6 and IPv4 network access. It is proposed to extend DSMIPv6 to support home networks which provides IPv4, or IPv6 respectively, direct network access only, but where virtual IPv6 home network connectivity, or virtual IPv4 home network connectivity respectively, may be obtained by tunneling to the HA. The latter shall be obtained by DSMIPv6 operation using the v4HoA address as Care-of-address for the v6HoA address, and vice versa, the v6HoA address as care-of-address for the v4HoA address.

Proposal

When the DSMIP6 MN is attached to its IPv4-only home link:

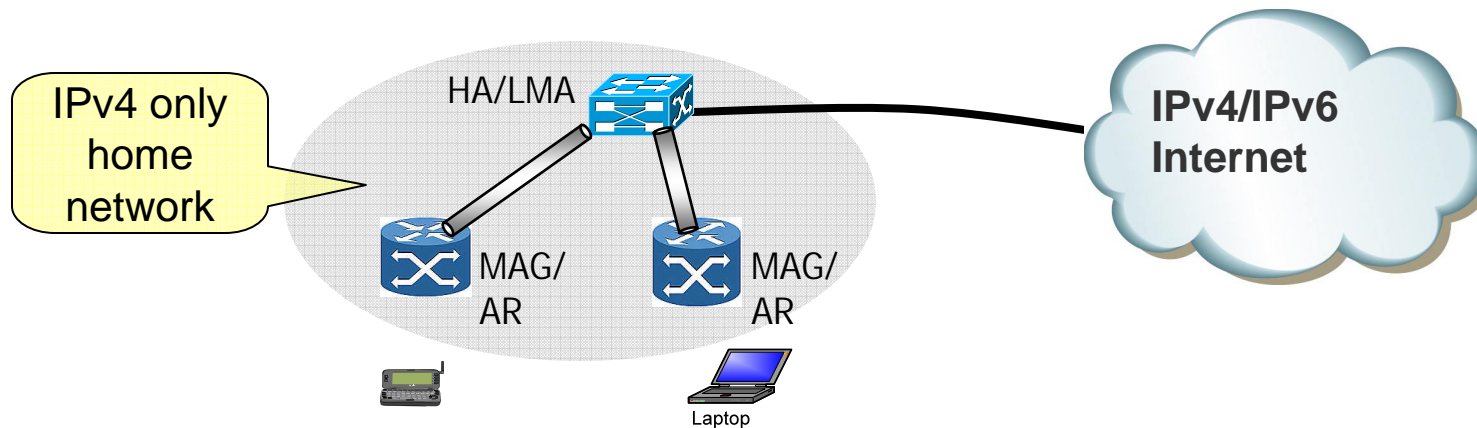
- the MN is allowed not to register with the HA
 - in this case the MN has only IPv4 connectivity and no IPv6 connectivity
- if the MN needs IPv6 connectivity, it may register its IPv4 HoA as the care-of address for the IPv6 HoA
 - virtual IPv6 home link



Interactions with PMIP6

The IPv4-only home link may be emulated by PMIP6:

- IPv4 HoA is managed by the MAG
- IPv6 HoA is managed by the MN



Any issues?

- BCE overwriting?
- race conditions?
- ???

More thorough analysis is required.

Next steps

- review and feedback of the WG on draft-premec-mext-extended-home-link
- consider draft-premec-mext-extended-home-link as a WG item?

backup

Packet format

Binding update

```
IPv4 Header (src = v4HoA, dst = v4HA)
  UDP Header (src = dst = DSMIP port)
  IPv6 Header (src = v6HoA, dst = v6HA)
  ESP Header
  Mobility Header
    type = 5 (Binding Update)
    lifetime non-zero
    IPv4 Home Address option (v4HoA)
    IPv4 Care-of Address option (v4HoA)
```

Binding acknowledgment

```
IPv4 Header (src = v4HA, dst = v4HoA)
  UDP Header (src = dst = DSMIP port)
  IPv6 Header (src = v6HA, dst = v6HoA)
  ESP Header
  Mobility Header
    type = 6 (Binding Acknowledgement)
    lifetime non-zero
    IPv4 Address Acknowledgement option (v4HoA)
```