PMIPv6-MIPv6 Interactions

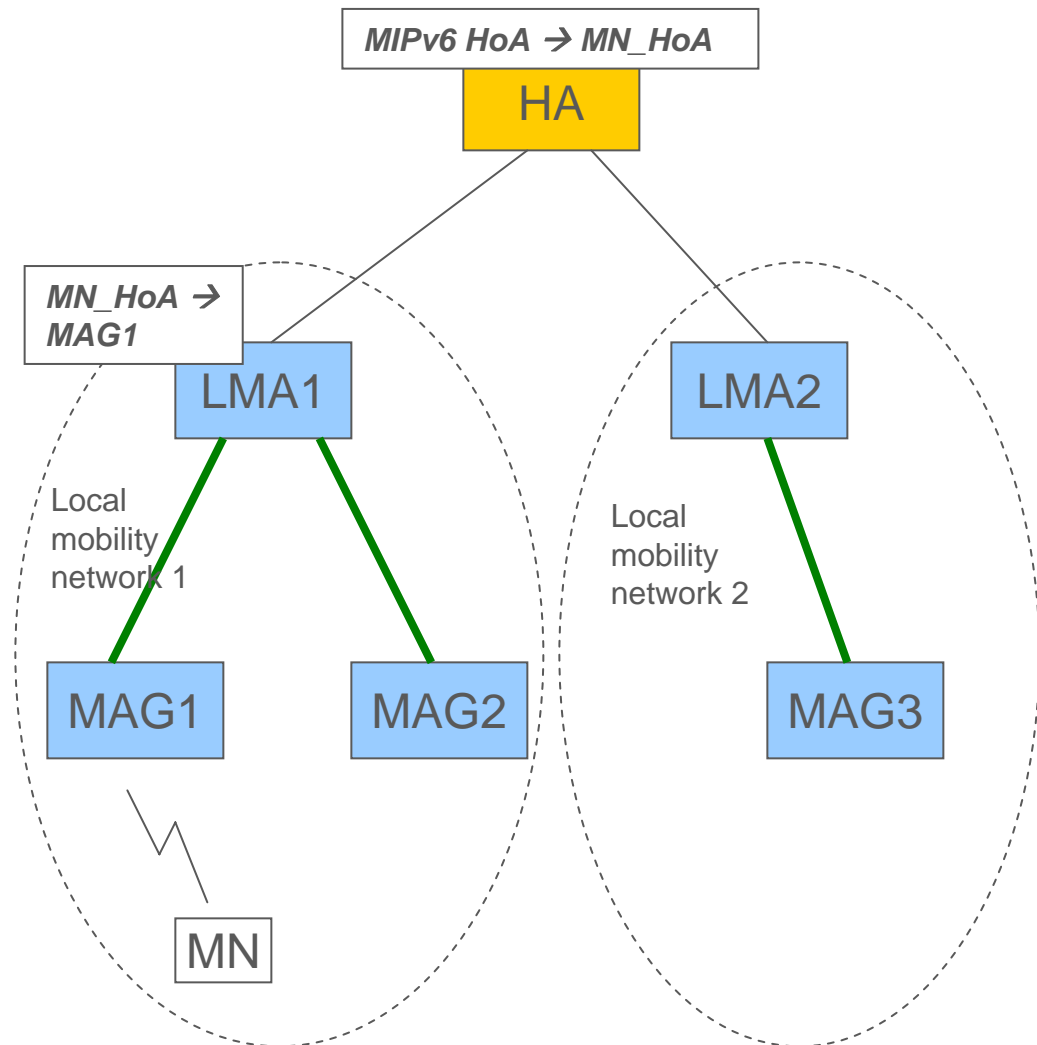**draft-giaretta-netlmm-mip-interactions-02**

Gerardo Giaretta, ed.

Status

- **draft-giaretta-netlmm-mip-interactions-02 submitted**
- **Version 01 was a merge of three drafts**
  - draft-giaretta-netlmm-mip-interactions-00
  - draft-devarapalli-netlmm-pmipv6-mipv6-01
  - draft-weniger-netlmm-pmipv6-mipv6-issues-00
- **Describes three interworking scenarios between MIPv6 and PMIPv6**
  - Captures issues
  - Describes possible solutions to address the issues

Scenario A

- **PMIPv6 and MIPv6 used in an hierarchical manner**
  - PMIPv6 used for local mobility management
  - MIPv6 used for global mobility management
- **PMIPv6 assigned address (MN_HoA) is used as the CoA for MIPv6 binding**
- **Mobility between MAGs localized to the LMA**
- **Mobility between LMAs results in an update of MIPv6 binding**
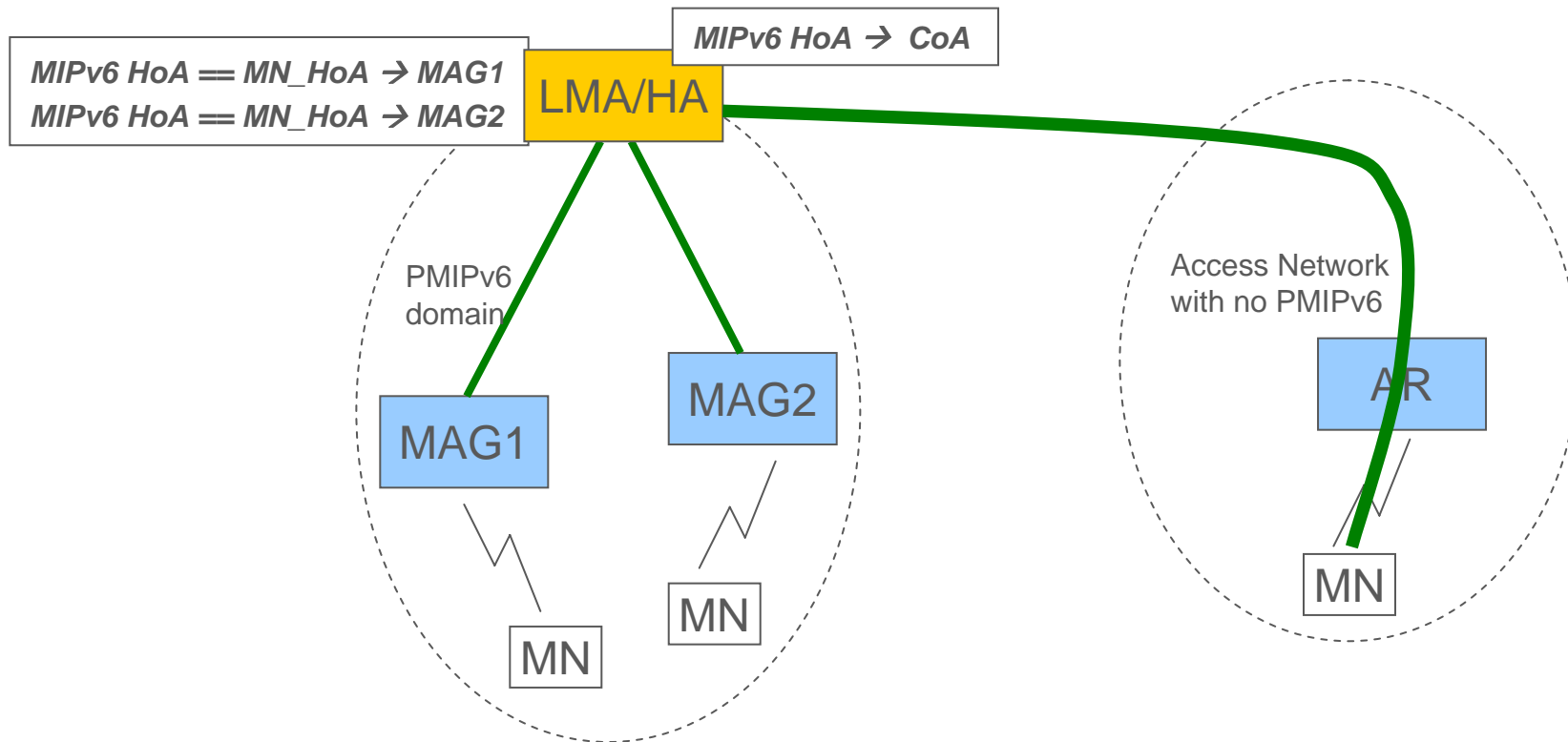- **No issues**

MIPv6 HoA → MN_HoA

HA

MN_HoA → MAG1

LMA1

LMA2

Local mobility network 1

Local mobility network 2

MAG1

MAG2

MAG3

MN

Scenario B

- **A mix of mobile nodes that use MIPv6 and those that depend on PMIPv6 on mobility management are in the same access network**

- **Access router performs a dual role**
  - IPv6 access router for those MNs that use MIPv6
    - **Advertising topologically correct prefixes**
  - MAG for those MNs that use PMIPv6
    - **Advertising prefixes received from the LMA in the PBA**

- **How to ensure this dual role of the access router?**
  - System level solution and not a protocol issue
  - Outside the scope of the draft

Scenario C

- ## PMIPv6 domain as a MIPv6 home link
  - MN transitions between using MIPv6 and PMIPv6 and vice versa

Open Issues

- **Should we include any explicit requirement for the AR behavior in the scenario B?**
  - Scenario B should be expanded to cover not only MIPv6 nodes but also other nodes that do not want to or are not authorized to receive PMIPv6 services

- **The draft needs to be updated and some issues re-considered based on the multi-homing support in PMIPv6**
 - Affect scenario C description and respective issues

Open Issues (cont'd)

- ## PMIPv6 and MIPv6 binding caches

  - The current version of the draft assumes that there is one binding cache which is shared between the HA and the LMA
    - **The same BCE is updated either by the MN or by the MAG**

  - This assumption implies some issues
    - **E.g. race conditions in the returning home scenario**

  - The draft tries to solve those issues with some modifications to the HA/LMA procedures
    - *The HA/LMA MUST NOT delete the binding cache entry for the mobile node after receiving a de-registration BU if in the binding cache there is a BCE with the P-flag set for the same MN.*
    - **A solution for race condition between PBU and BU (using timestamps and sequence numbers) is still TBD after 3 versions of the draft**

Open Issues (cont'd)

- **PMIPv6 and MIPv6 binding caches: alternative approach provided by George in the mailing list**
  - PMIPv6 and MIPv6 Binding Cache entries are kept independent and do NOT affect each other
  - Scenario A and C look identical, except that in scenario C the HNPs are shared between HA and LMA (as they are co-located)
  - Left for implementations how the LMA and the HA share the HNP
  - Figure shows the example in case of returning home scenario
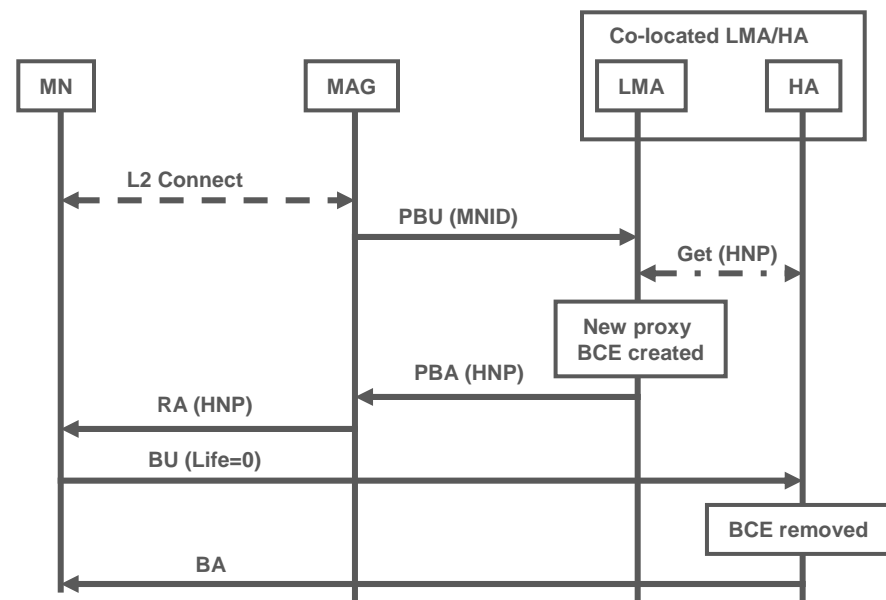
Next Steps

- **To be considered for re-chartering**