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Network Mobility Support using Mobile MAG in Proxy Mobile IPv6 Domain

draft-sijeon-netext-mmag-pmip-00.txt

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Goals and Scope

- ## Goals
  - Present network mobility support method over Proxy Mobile IP domain
  - Not using DHCP but using stateless IP address configuration on mobile network

- ## Scope
  - Network mobility between MAGs
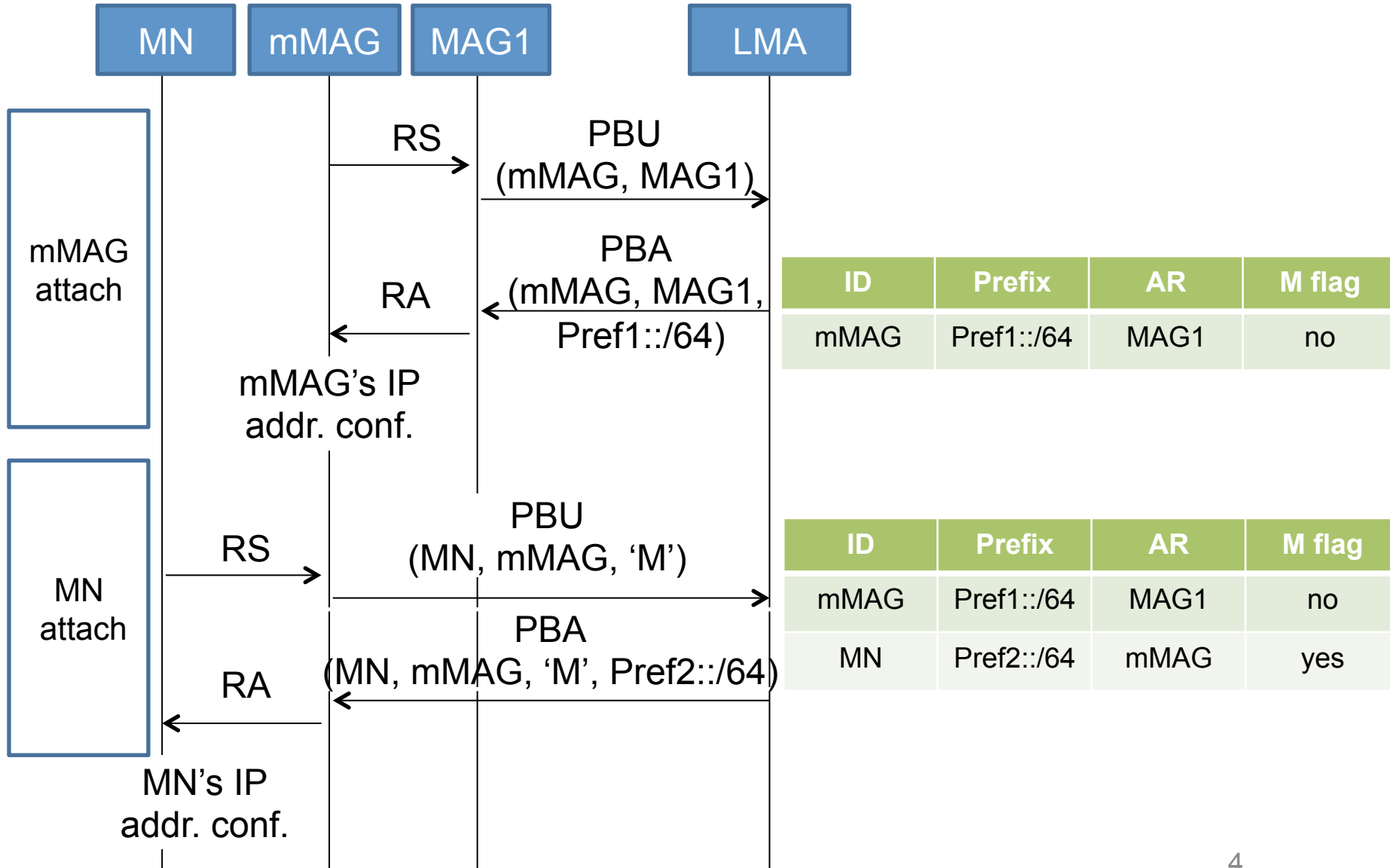 - Node mobility between mobile network and fixed PMIPv6 domain

What are proposed?

- mobile MAG (mMAG)
  - Re-use of MAG function on plain mobile router
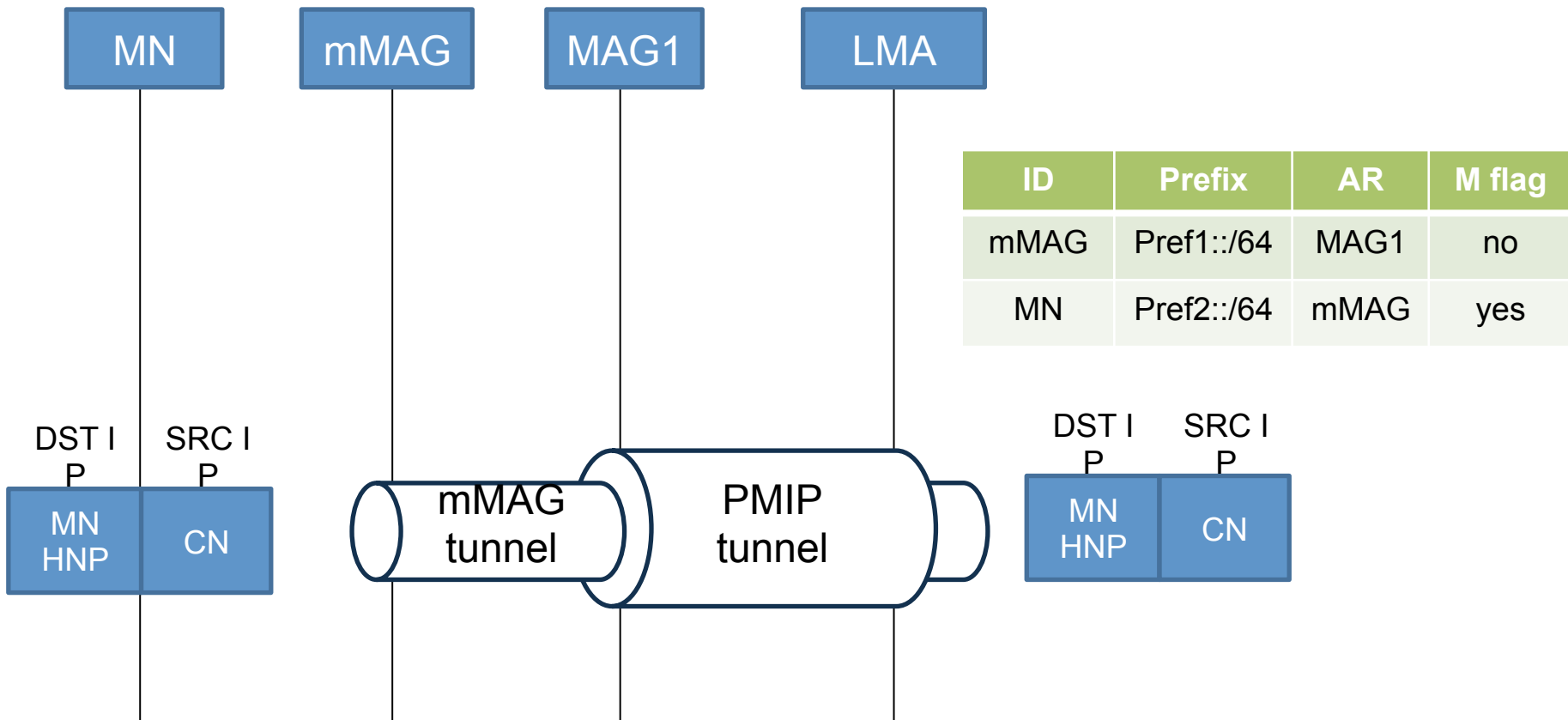 - In charge of detecting MN's attachment and performing mobility update instead of the MN
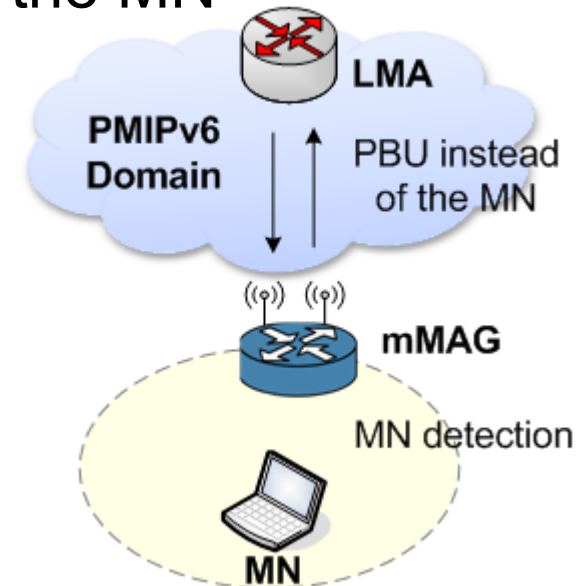
  - mMAG is connected with

    '<u>single</u>' LMA through attached MAG
    - while a MAG can be connected to multiple LMA depending on associated LMA of each MN

mMAG and MN Attachment

MN | mMAG | MAG1 | LMA

mMAG attach

RS →

PBU (mMAG, MAG1) →

RA ←

PBA (mMAG, MAG1, Pref1::/64) ←

ID	Prefix	AR	M flag
mMAG	Pref1::/64	MAG1	no

mMAG's IP addr. conf.

MN attach

RS →

PBU (MN, mMAG, 'M') →

RA ←

PBA (MN, mMAG, 'M', Pref2::/64) ←

ID	Prefix	AR	M flag
mMAG	Pref1::/64	MAG1	no
MN	Pref2::/64	mMAG	yes

MN's IP addr. conf.

Packet Delivery

ID	Prefix	AR	M flag
mMAG	Pref1::/64	MAG1	no
MN	Pref2::/64	mMAG	yes

MN mMAG MAG1 LMA

DST IP | SRC IP

| MN HNP | CN |

mMAG tunnel

PMIP tunnel
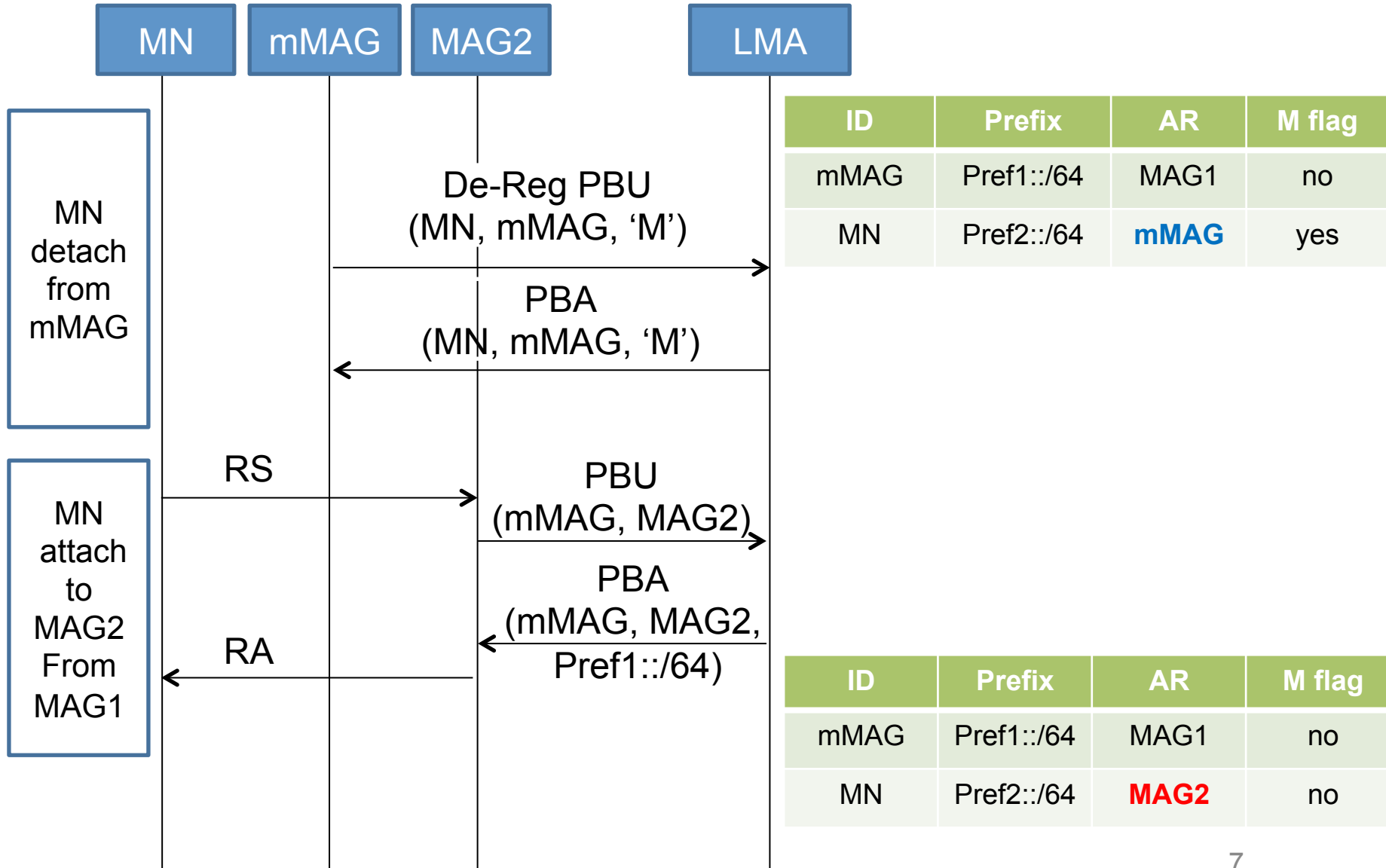
DST IP | SRC IP

| MN HNP | CN |

mMAG's handoff

- MAG see the mMAG as a MN so the PMIPv6 handoff process specified in RFC 5213 is performed

- When the mMAG moves to MAG3 from MAG1, only mMAG's entry will be updated

ID	Prefix	AR	M flag
mMAG	Pref1::/64	**MAG3**	no
MN1	Pref2::/64	mMAG	yes
MN2	Pref3::/64	mMAG	yes

Node handoff (MN's moving)

MN | **mMAG** | **MAG2** | **LMA**

ID	Prefix	AR	M flag
mMAG	Pref1::/64	MAG1	no
MN	Pref2::/64	**mMAG**	yes

MN detach from mMAG

De-Reg PBU
(MN, mMAG, 'M')

PBA
(MN, mMAG, 'M')

MN attach to MAG2 From MAG1

RS

PBU
(mMAG, MAG2)

PBA
(mMAG, MAG2,
Pref1::/64)

RA

ID	Prefix	AR	M flag
mMAG	Pref1::/64	MAG1	no
MN	Pref2::/64	**MAG2**	no

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What are extended?

- ## MN, MAG
  - No extensions for both
  - MAG is transparent for NEMO support

- ## LMA
  - 'M' flag in BCE
    - Used to distinguish whether the MN belongs to mobile network or not
    - Also used in PBU/PBA signaling with mMAG
  - Double-lookup processing in the LMA for the packets destined to the MN within mobile network

Next Step

- Consideration to be a working group document