

IPv4 Support for Proxy Mobile IPv6

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`draft-ietf-netlmm-pmip6-ipv4-support-04.txt`

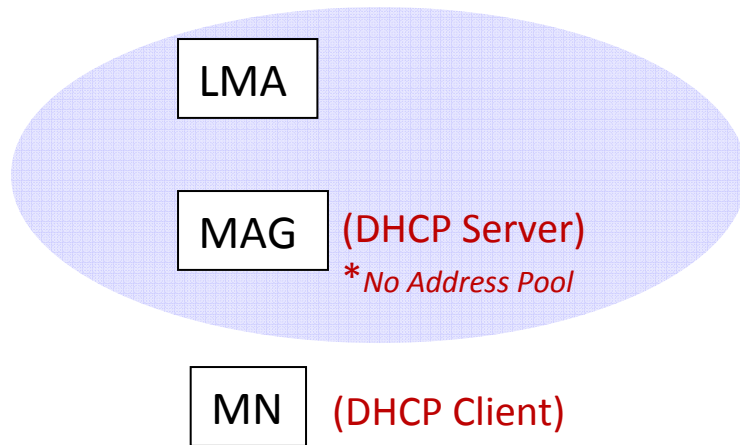
Changes from -03 Version

- The ability for the LMA to assign multiple IPv4 home addresses to the mobile node.
- Tightly tied to the signaling rules for the IPv4 HoA assignment with the signaling rules specified in the base document. Adopted multi-homing changes in the base draft.
- Some cleanup with respect to pointing to the base draft where ever possible and only specify the extensions.
- Fixed the signaling rules and added all the missing considerations.
- Use of virtual DHCP Server ID for handling the DHCP server collocated in MAG scenario.
- Added Protocol Configuration Flags.

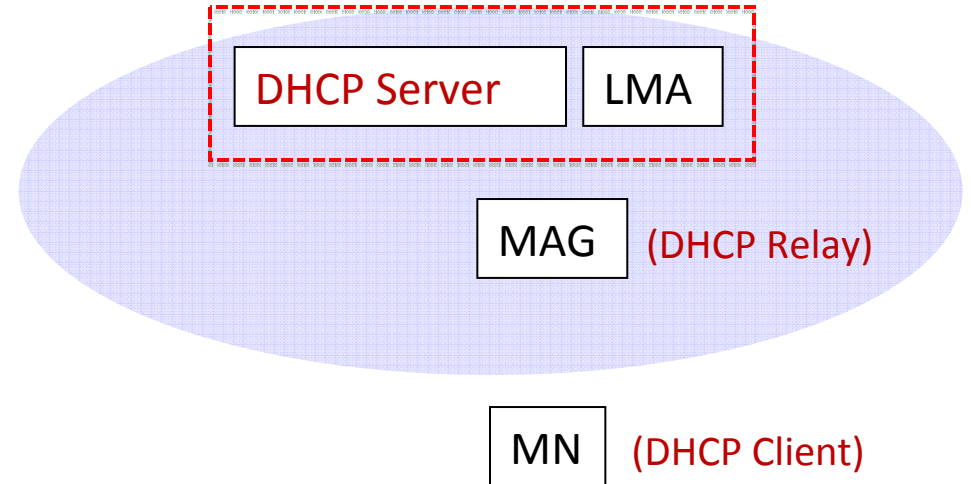
Changes from -03 Version

- Protocol Configuration Flags
 - AcceptIPv4UDPEncapsulationRequest
 - RequestIPv4UDPEncapsulationSupport
 - ForceIPv4UDPEncapsulationSupport
 - FixedDHCPServerId

DHCP Configurations



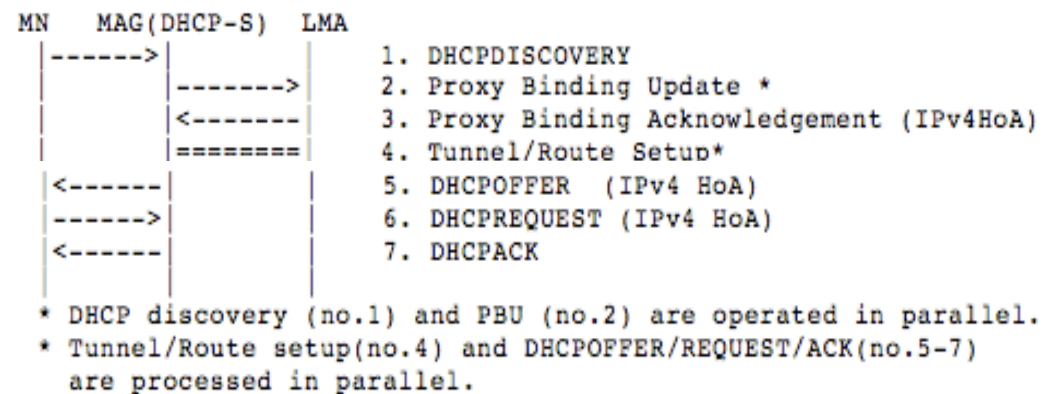
DHCP-S is at each MAG



DHCP-R is at MAG
DHCP-S is at either LMA or
somewhere in PMIP domain

DHCP-S is at MAG

- DHCP-S obtains IPv4 HoA for MN from LMA during proxy binding registration
- DHCP-S offers the IPv4 HoA to MN by using DHCP OFFER



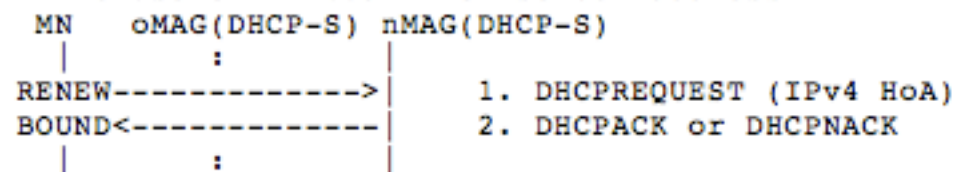
DHCP-S Virtual ID

- Issue: Each MAG has different IPv4 address. When MN changes its attached MAG, DHCP-S address is changed. This is problem when address renewing is happened. All DHCP renew messages are unicasted to previous MAGs
- Solution: Sharing a single DHCP-S address among all MAGs. Even if MN changes attached MAG, the DHCP-S address stays same.

Address Renewing when DHCP-S is at MAG

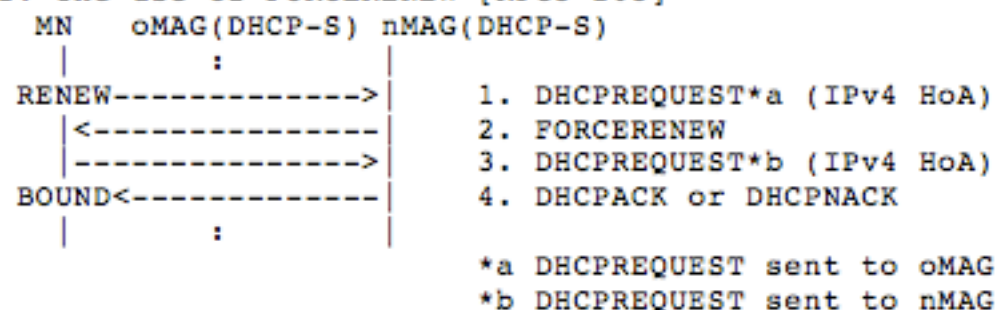
- If DHCP-S Virtual address is used, no special operations are required

1. The use of Virtual DHCP server address



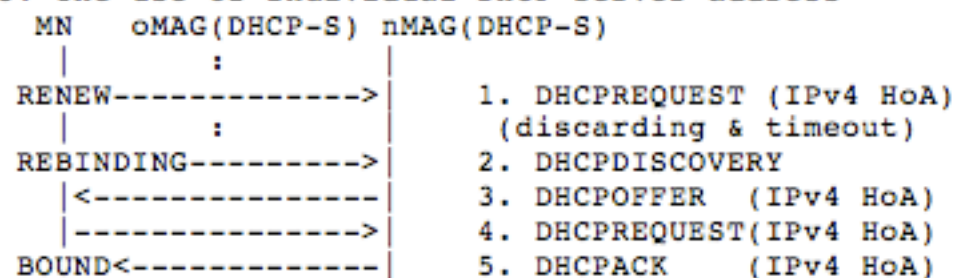
- FORCERENEW message [RFC3203] can be used to update DHCP-S address

2. The use of FORCERENEW [RFC3-203]



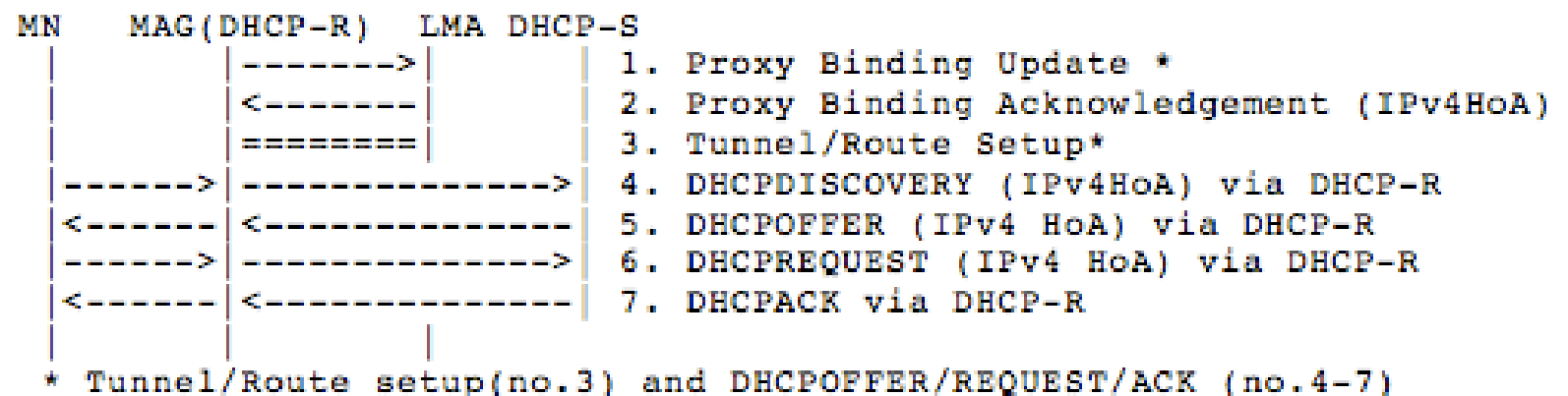
- Otherwise, new MAG (DHCP-S) discards all DHCP renewing message from MN so that MN goes into the REBINDING state and starts DHCPDISCOVERY again. As a result, MN can update the DHCP-S

3. The use of Individual DHCP server address



DHCP-R is at MAG

- MAG obtains IPv4 HoA for MN during proxy binding registration.
- MAG inserts the IPv4 HoA in the subnet selection option of DHCPDISCOVERY so that DHCP-S offers that IPv4 HoA to MN.



Address Renewing when DHCP-R is at MAG

- Issue: MN unicasts DHCP renewing message directly to DHCP-S. MAG should intercept that message to verify the release status of the IPv4 HoA.
- Solution-1: MAG intercepts all DHCP messages regardless of destination addresses (i.e. promiscus mode)
- Solution-2: MAG uses DHCP-S Identifier Override option [RFC5107]. With this option, the DHCP-S address is overridden by DHCP-R address.

Thank You

