IPv4 Support for Proxy Mobile IPv6
draft-ietf-netlmm-pmip6-ipv4-support-02.txt

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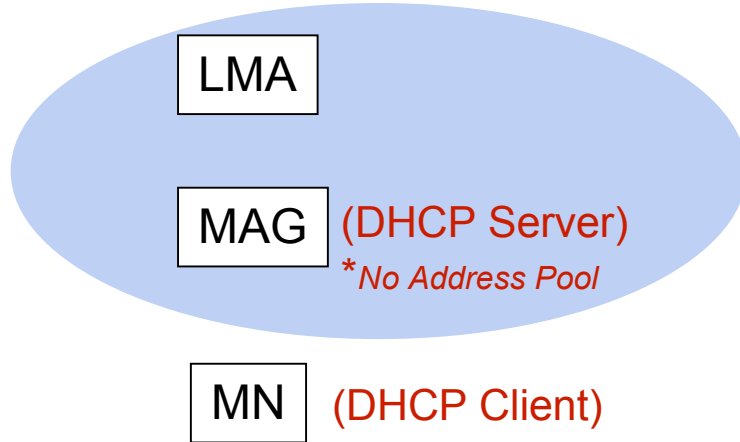
Sri Gundavelli

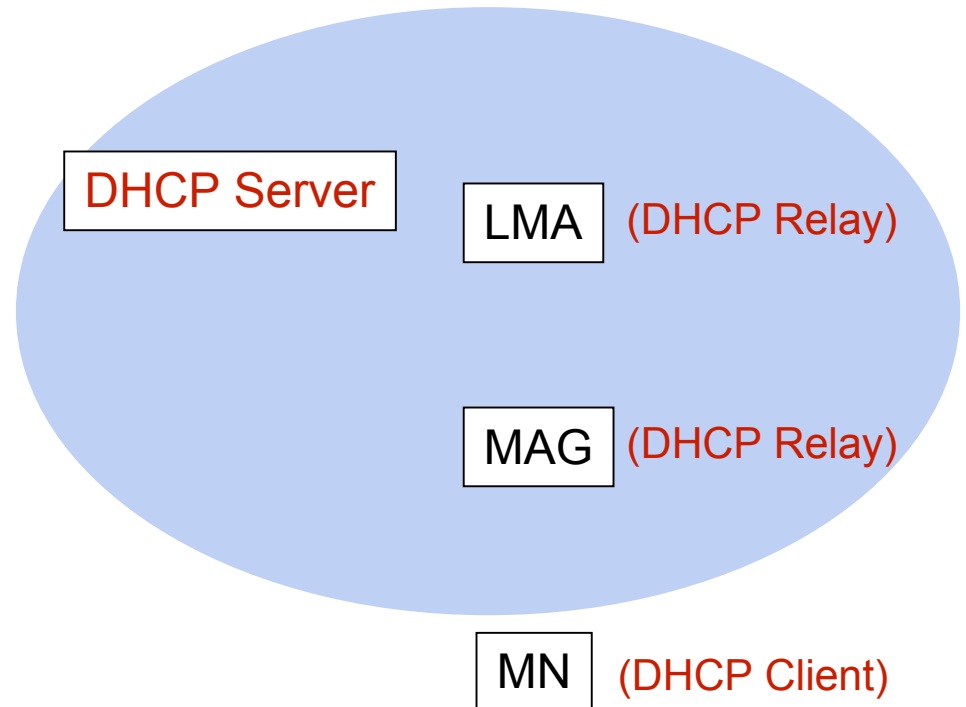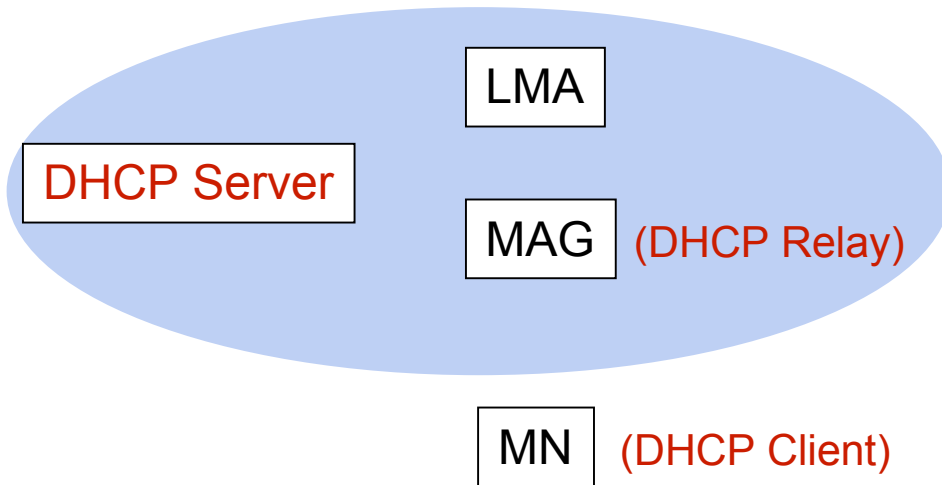IETF 70th NETLMM WG

Updates

- DHCP Configurations
  - Adding two scenarios as bases
  - Adding more scenarios in Appendix

- Catching up to the latest PMIPv6
  - support multihomed mobile node
  - support inter-access handoff

- Several editorial updates

Various DHCP Configurations

1) DHCP-S is at each MAG

LMA

MAG (DHCP Server)
No Address Pool

MN (DHCP Client)

LMA

DHCP Server

MAG (DHCP Relay)

MN (DHCP Client)

DHCP-S is in PMIP6 domain

2) DHCP-S is at LMA

LMA (DHCP Server)

MAG (DHCP Relay)

MN (DHCP Client)

DHCP Server

LMA (DHCP Relay)

MAG (DHCP Relay)

MN (DHCP Client)
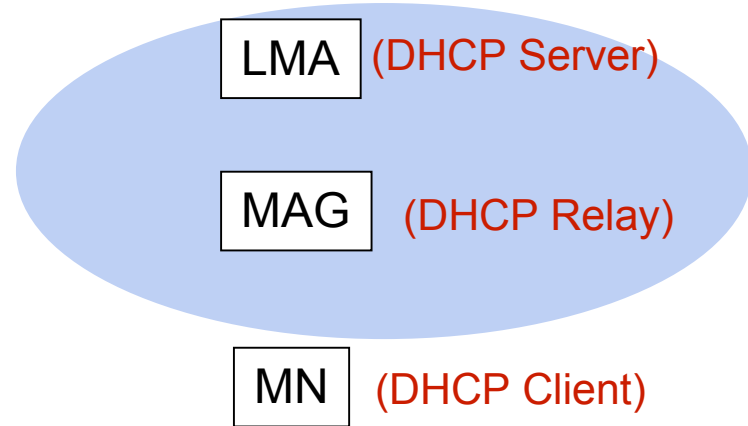
DHCP-S is located at MAG

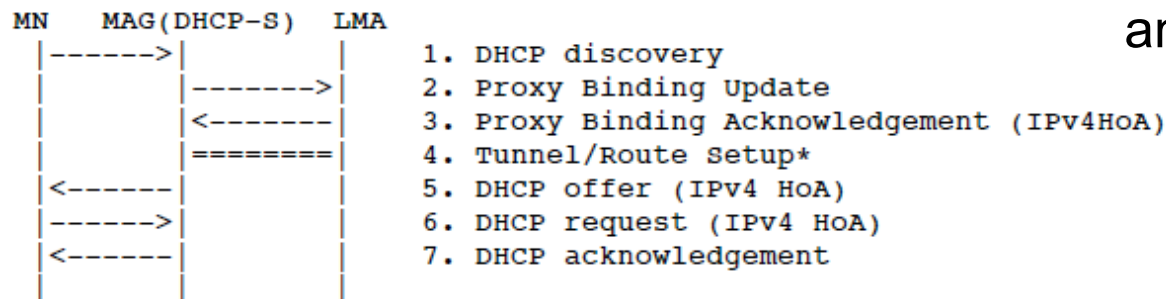- MAG is DHCP Server without Address Pool
- MAG retrieves IPv4 address for MN from LMA by PBU/PBA (IPv4 HoA: 0.0.0.0)
- After successful PBA, MAG sends DHCP offer
- Handover Consideration
  - IPv4 HoA assignment info is always retrieved by MAG from proxy binding registration or from policy profile

- DHCP Server ID Change
  - Assigning the same DHCP server ID
  - Changing MN's DHCP client state to REBINDING state

- DHCP message is unicasted to previous MAG
  - MAG intercepts all the unicasted DHCP messages and rejected these

```
MN    MAG(DHCP-S)   LMA
 |------>|           |      1. DHCP discovery
 |       |------->|          2. Proxy Binding Update
 |       |<-------|          3. Proxy Binding Acknowledgement (IPv4HoA)
 |       |========|          4. Tunnel/Route Setup*
 |<------|           |      5. DHCP offer (IPv4 HoA)
 |------>|           |      6. DHCP request (IPv4 HoA)
 |<------|           |      7. DHCP acknowledgement
 |       |           |
* Tunnel/Route setup(no.4) and DHCP offer/request/ack(no.5-7)
  are processed in parallel.
```

DHCP-S is located at LMA

- LMA is DHCP Server and MAG is DHCP Relay
- After DHCP ack, MAG sends PBU for the assigned IPv4 HoA
- Handover Consideration
  - IPv4 HoA assignment info is always retrieved by MAG from the policy profile

- DHCP relay intercepts packets sent only to broadcast address
  - DHCP relay (MAG) must analyzes all the DHCP related packets at the MN-AR link, intercepted and forwarded them to LMA if needed

```
MN    MAG(DHCP-R)  LMA(DHCP-S)
 |------>|------->|         1. DHCP discovery to DHCP-S through DHCP-R
 |<------|<-------|         2. DHCP offer (IPV4 HoA)
 |------>|------->|         3. DHCP request (IPV4 HoA)
 |       |<-------|         4. DHCP acknowledgement
 |       |------->|         5. Proxy Binding Update
 |       |<-------|         6. Proxy Binding Acknowledgement
 |       |=======|         7. Tunnel/Route Setup
 |<------|       |         8. DHCP acknowledgement
 |       |       |
```