IPv4 Support in NetImm protocol

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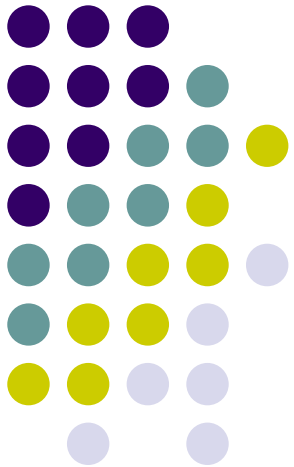
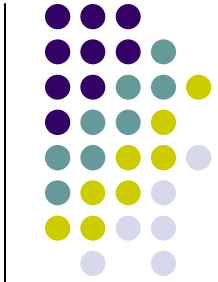
NetImm WG meeting @ IETF68

March 20, 07

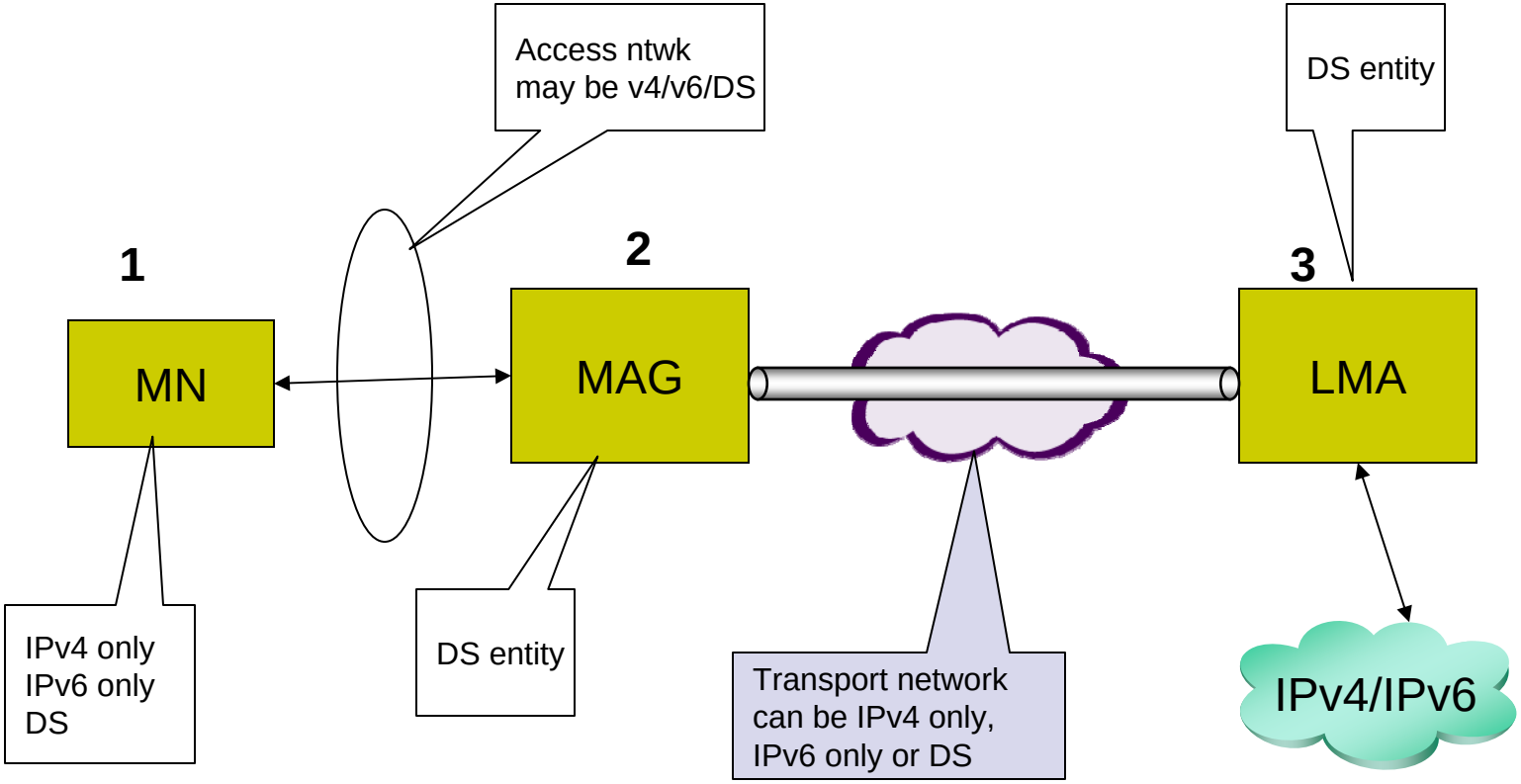


Objective



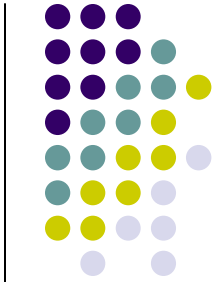
- Discuss the requirement for IPv4 support by the NetImm protocol in several contexts

Where is IPv4 support needed?



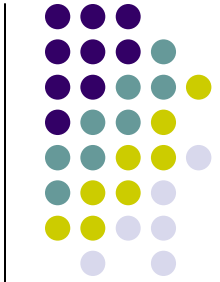
- Support for IPv4 only hosts and support for v4-HoA for DS hosts
- Support for IPv4 at the MAG and LMA to deal with the transport network
- Support IPv4 HoA and binding at the LMA for hosts requesting an IPv4 address

Support for IPv4 hosts



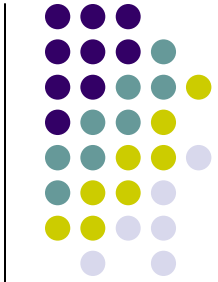
- NetImm is designed to support IPv6 and Dual-stack hosts (the IPv6 part of the DS host)
- Should the NetImm protocol support IPv4 only hosts?
  - Is NetImm a network-based mobility protocol solution for IPv4 hosts as well?
- Implications:
  - DS-LMA supporting IPv4 HoA
  - NAT traversal mechanisms need to be in place
  - Address assignment procedures in case of DHCP (v4/v6)
  - Tunnelling of the data traffic between the LMA and MAG will be IPv4 over IPv6

IPv4 support at the MAG



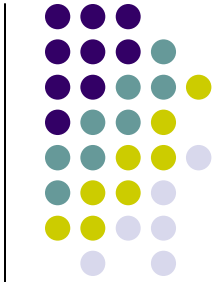
- Signaling between the MAG and LMA is based on MIP6
- Access networks between the MN and MAG and the transport network between the MAG and LMA cannot be assumed to be IPv6 only
- MAG needs to support hosts requesting IPv4/IPv6 addresses as well as IPv4 only hosts
- MAG/LMA need to be transport network agnostic and ensure connectivity between them for all scenarios

IPv4 at LMA



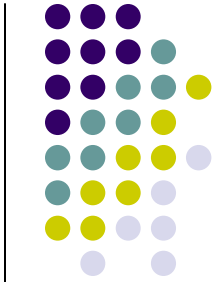
- Support IPv4 HoA for v4 only hosts and for hosts that request a v4 address in addition to a v6 HoA
- Single anchor providing connectivity to v4 and v6 networks

Issues



- Is a host with a v4 and v6 address considered to be multi-homed?
- IPv4 address type (Private vs Globally routable)
  - Overlapping addresses in the same PMIP6 domain?
- Triggers for PMIP6: DHCPv4, DHCPv6 ?
- Applicability and use of v4/v6 transition mechanisms
  - Reuse; Criteria?
- NAT traversal solutions?

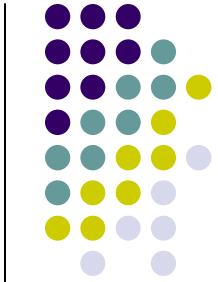
Questions



- How critical is the need for specifying IPv4 support for NetImm protocol?
  - There is general consensus that IPv4 support is needed
  - Debate is focused on whether it is specified as part of the base protocol specification document or as an extension

- PMIP6 is based on MIP6. Should DS-MIP6 be the basis for supporting IPv4 hosts, transition and NAT traversal?

Use of DS-MIP6



- DS-MIP6 is specifying a feature that allows a DS-MIP6 MN and DS-MIP6 HA to deal with:
  - Presence of IPv4 network between the MN and HA
    - Enables various tunnelling schemes
  - Presence of NATs between the MN and HA
  - Support assignment of a v4 address for the DS-MIP6 MN anchored at the DS-MIP6 HA
- While several transition mechanisms exist, DS-MIP6 has been viewed as the most optimal for MIP6
- Reuse the same solution in NetImm?