Limited Private Address Support For Reverse Tunneling In MIPv4

Reference: draft-chakrabarti-mobileip-privaddr-00.txt

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Why is there a separate draft ?

- RFC3024 mandates Limited Private Address Scenarios (LPAS) in the Appendix A.4
- Implementors usually do not implement the Appendix sections and views them as reference
- Connectathon result shows most RFC3024 foreign agent implementations do not support LPAS, resulting in interoperability issues
- This draft provides some implementation guidelines for LPAS usage with reverse tunnels.

Basic Assumptions

- Private addresses as defined in RFC1918
- Private addresses are limited to home address of mobile nodes
- Solution based on mobile IP rfc3220 and reverse tunneling rfc3024 (i,e. No NAT involved)
- LPAS is useful for short-term deployment of Mobile IP

LPAS Overview

A mobile node

- Must obtain reverse tunnel with registration
- must have unique home address in it's home domain
- with public co-located COA may use private home address via reverse tunnel
- may possibly never be *at home*, always visiting a foreign network (example: cell phones).

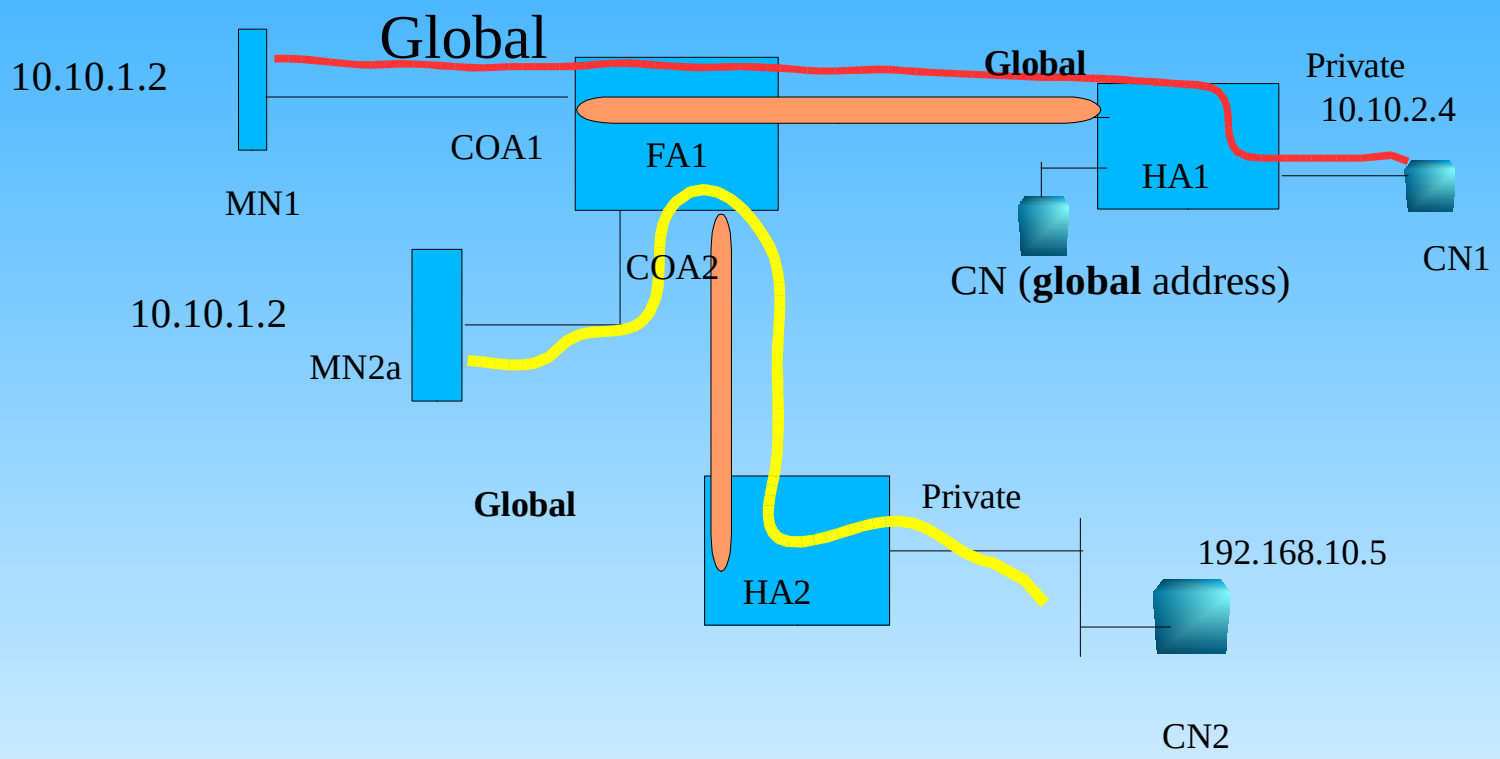
LPAS Overview

Foreign and Home agent

- must support reverse tunnel encapsulation/decapsulation
- FA's COA and HAA are publicly routable addresses and topologically connected by the forward and reverse tunnel
- If a FA supports reverse tunneling, then it MUST support the limited private address scenario

Scenarios

Private addressed mobile nodes are visiting : most common case



MN2a <---->Mn2b
MN1<------>CN1
MN1<------>CN

MN1 and MN2a have same home address

Communicating with a CN in global Internet ?

Solution 1:

- Mobile node MUST use a public home-address. Thus a address-less MN SHOULD be configured with two home-agents' address-one offers private home address and the other offers public home-address through NAI.

Solution 2:

- Introduce another field "Address Type" in the NAI extension in RFC2794 ?

Address Type = 0 (Global), 1(Private). Issue: RFC2794 needs a change.

Implementation Notes

- Hard to distinguish two overlapping private addresses using same shared link
- ➔ Not a problem in 3G-wireless as it uses one PPP interface per MN at a particular FA
- If a private MN registers with two different home agents using the same shared link via same COA of a FA, it should use different home addresses

WG Comments ?

- There is at least one implementation for LPAS, any other implementation ?
- Many Cellular ISP folks think LPAS scenrio is useful for initial MIPV4 deployment
- Should this be a working group document?
  - BCP? Informational?