Network Working Group
Internet-Draft
Intended status: Informational
Expires: October 2, 2008

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March 31, 2008

MIPv6 Home Link Detection
draft-krishnan-mext-hld-01

Status of this Memo

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Abstract

The MIPv6 bootstrapping procedure allows the mobile node to dynamically discover its home prefix using an IKEv2 exchange. Since the home prefix is not statically configured on the mobile node, there is a need to specify a mechanism for the mobile node to detect if it is on its home link. This document specifies one such mechanism.

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1. Requirements notation

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in [RFC2119].

2. Introduction

A Mobile IPv6 node requires a Home Agent address, a home address, and IPsec security associations with its Home Agent before it can start utilizing Mobile IPv6 service. The base MIPv6 RFC [RFC3775] requires that some or all of these are statically configured. The MIPv6 bootstrapping work specified in [RFC5026] describes how the MN can acquire such information dynamically.

3. Proposed method

This document proposes using the information available from Router Advertisements on the local link and the configuration information acquired using the IKEv2 exchange as specified in [RFC5026] to determine whether or not it has attached to its home link. It uses the Prefix Information Option(s) received in the Router Advertisements and the MIP6_HOME_PREFIX configuration payload received from the HA. The MN performs this home link detection procedure by following the steps described in Section 4.

4. Mobile Node Operation

When an MN arrives on a new link it performs the following steps to determine if it is on the home link.

- The MN sends out a Router Solicitation
- The MN receives a Router Advertisement in response with one or more Prefix Information Options as specified in [RFC4861].
- The MN autoconfigures an address from one of the received prefixes that have the autonomous address configuration flag set. This address is referred to as the Current MN Address (CMA)
- The MN stores all the prefix(es) received along with their prefix lengths in the RA in a conceptual list called the Current Link Prefix List (CLPL)
- The MN uses the CMA to initiate the bootstrapping procedure described in [RFC5026]. The MN MUST include the MIP6_HOME_PREFIX attribute in the CFG_REQUEST message.
- The MN receives the home prefix and the corresponding prefix length from the HA contained in the MIP6_HOME_PREFIX attribute in the CFG_REPLY message. The MN stores it in a conceptual variable

called the HomePrefix.
- The MN iterates through the CLPL and compares HomePrefix to each of the entries there in turn.
- If one (or more) of the entries in the CLPL matches the HomePrefix, the MN can determine that it has attached to its home link
- If none of the entries in the CLPL matches the HomePrefix, the MN can determine that it has not attached to its home link

5. Acknowledgements

The authors would like to thank Gerardo Giaretta, Hesham Soliman, Julien Laganier and Vijay Devarapalli for their contributions to this document.

6. IANA Considerations

This document does not require any action from the IANA.

7. Security Considerations

This document does not create any new security issues other than those specified in [RFC3775] and [RFC5026]

8. Normative References

[RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, March 1997.

[RFC3775] Johnson, D., Perkins, C., and J. Arkko, "Mobility Support in IPv6", RFC 3775, June 2004.

[RFC4861] Narten, T., Nordmark, E., Simpson, W., and H. Soliman, "Neighbor Discovery for IP version 6 (IPv6)", RFC 4861, September 2007.

[RFC5026] Giaretta, G., Kempf, J., and V. Devarapalli, "Mobile IPv6 Bootstrapping in Split Scenario", RFC 5026, October 2007.

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Acknowledgment

Funding for the RFC Editor function is provided by the IETF Administrative Support Activity (IASA).