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Proxy Mobile IPv6 with Mobility Session Redirection
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Abstract

This specification describes an enhanced mobility anchoring for mid-session mobility over Proxy Mobile IPv6 networks.

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[1.](#) Introduction

Proxy Mobile IPv6 (PMIPv6) specification allows no provision to switch a Local Mobility Anchor (LMA) to another LMA during mid-session when an LMA may need to handoff a mobile node (MN) to another LMA for load balancing or maintenance purpose.

[RFC 6463](#) describes the runtime LMA assignment functionality and the protocol extension for PMIPv6. However, it is defined only for initial registration process not in the case of mid-session.

This specification describes a procedure and assisted methods for switching a current LMA to a target LMA, called mobility session redirection, in short MSR.

[2.](#) Overview

The mobility session redirection (MSR) relies on the runtime LMA assignment scheme defined in [\[RFC6463\]](#).

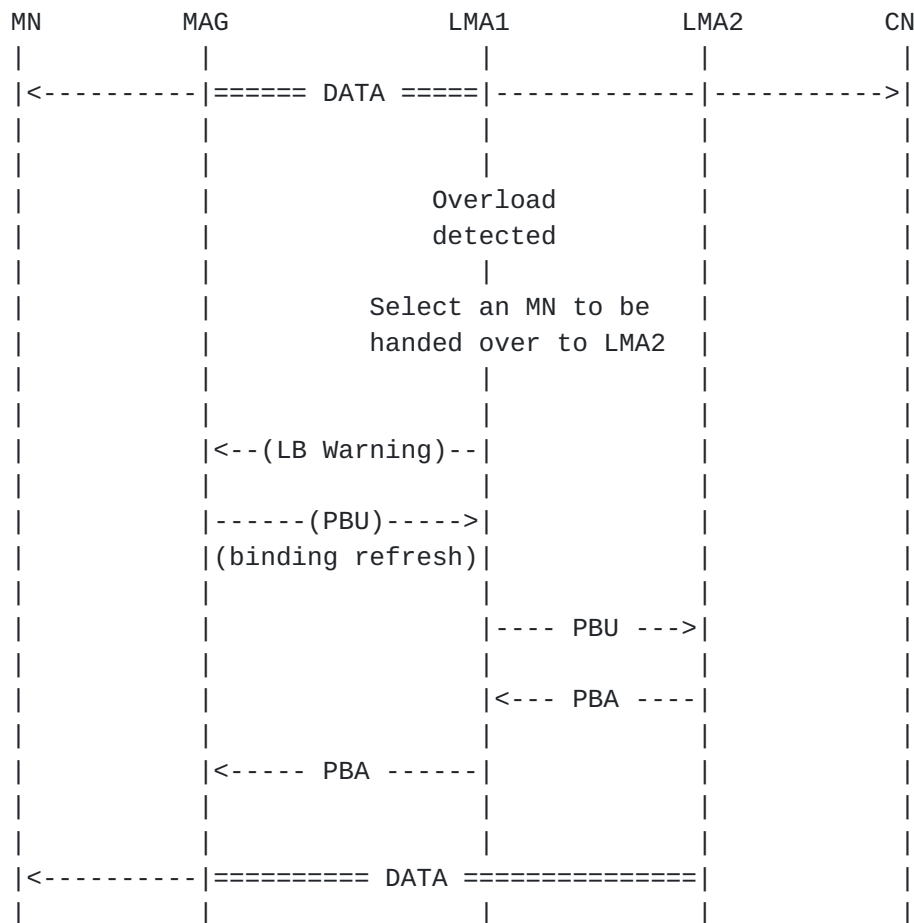


Figure 1 An LMA switching procedure

Figure 1 shows the message sequence procedure for the LMA switching operation. Suppose that each LMA has a load threshold it can endure. When load reaches the threshold of acceptable capacity of LMA1, LMA switching is then activated for a selected mobile node (MN). When the load reaches the absolute maximum capacity allowed in LMA1, LMA1 sends load balancing (LB) warning indication to the determined MAG to have a specific LMA switching request such as a designated LMA. For the warning indication, the update notification mechanism, defined in [\[RFC7077\]](#), as to induce the binding refresh request can be utilized.

However, LMA switching can be determined by the MAG in the allowed LMA load condition. So, the MAG can reject the LMA switching not to prevent an on-going session activity. When the MAG has a designated LMA address to switch the current one in the ordered list, the

target LMA address is delivered by an added option message in the PBU signaling message. For the option message, Redirect Mobility Option, defined in [[RFC6463](#)], can be used. When the MAG is no designated LMA address, null is given. Alternatively, when the load reaches the absolute maximum capacity allowed in LMA1, LMA1 does not wait for the next refresh binding request of Proxy Binding Update (PBU) message, and can proceed sending the PBU message for LMA switching towards LMA2. Once a chosen MN gets successfully redirected at LMA2, LMA2 takes the anchoring role for the MN so that data traffic between the MN and CNs is anchored at LMA2.

3. Selecting a Target Local Mobility Anchor

3.1. Based on the Ordered List

MAG may choose a target LMA in the ordered list it for switching the current one. When the contacted LMA is failed to switch, the subsequent LMA is tried to switch the current LMA again.

3.2. Based on Load Monitoring Entity

On the presence of load monitoring server of the deployed LMAs, the LMA can rely on the load monitoring server to know load status of target LMAs.

3.3. Based on Explicit Signaling

A distributed approach can be utilized between LMAs to check load status of target LMA by internally defined signaling messages or the external mechanisms such as IEEE 802.21 signaling primitives or peer-to-peer (P2P) approach.

3.4. Periodic Load Information Broadcasting Among LMAs

Load information can be obtained from periodic load information broadcasting of all the available LMAs. The LMA preparing the LMA switching can base the obtain information to select a target LMA.

4. IP Session Continuity

The proposed LMA switching can be used, regardless of IP session continuity. When the LMA switching occurs, the MN needs to configure a new home network prefix (HNP) allocated from the prefix pool of the redirected LMA. IP session continuity support might be difficult in PMIPv6. But in case where all LMAs are connected behind a switch and configured with a shared network prefix on egress interfaces of the LMAs, Proxy Neighbor Discovery (ND) can be used to deliver the packets destined to the MN. In the configured network, the use of Anycast routing can be another option to let the MN exchange its traffic with a new LMA.

5. Security Considerations

T.B.D.

6. IANA Considerations

T.B.D.

7. References

7.1. Normative References

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