

Advances in Mobility Management for IP Networks

Editors:

Aisha Hassan Abdalla Hashim

Othman Khalifa

Shihab A. Hameed



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ARCHITECTURE OF M-HMIPv6/CXTP

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10.1 INTRODUCTION

The architecture focused on the integration and enhancement of Multicast Hierarchical Mobile IPv6 with Context Transfer Protocol. Generally explained the support of Multicast Listener Discovery at the Mobile Anchor Point. Also gives general idea on how Context Transfer Protocol is being applied to Multicast Hierarchical Mobile IPv6 architecture.

There are several work approaches which have been proposed in order to provide better handover performance in mobile multicast of Mobile IPv6 (MIPv6) [1]. This includes the work in Hierarchical MIPv6 (HMIPv6) [2], Multicast HMIPv6 (M-HMIPv6) [3], and M-HMIPv6 with Context Transfer Protocol (CXTP) [4]. In this chapter, the architecture of M-HMIPv6/CXTP [5] is explained in general.

10.2 ARCHITECTURE OF M-HMIPv6/CXTP

In Multicast Hierarchical Mobile IPv6 (M-HMIPv6), the Multicast Mobile Anchor Point (M-MAP) is the router that handles the Multicast Listener Discovery (MLDv2) [6] context where all multicast traffic should be directed through M-MAPs. This traffic direction is done using Regional Care of Address (RCoA) as an identifier with respect to the multicast routing tree.

The context transfer is used during a mobile node's handover in order to provide the next M-MAP with the mobile node's listening state. This is important so that the various routing contexts may be established on behalf of the mobile node. It is assumed that all the scenarios described in this chapter, is supported by the CXTP.

There are different scenarios for the triggering of a context transfer:

- Network controlled initiated by previous or next access router
- Mobile node controlled triggered by the mobile node

The architecture used for the HMIPv6 is shown in Fig. 10.1 and for M-HMIPv6 with Context Transfer Protocol (CXTP) is shown in Fig. 10.2. Each consists of two domains. Each domain contains three levels, the highest level is where Mobility Anchor Point (MAP) resides, the second level is the location of Access Router (AR) and the lowest level is the location of the Mobile Node (MN). The main difference in these two architectures is at the MAP. This is where the MLD operation occurred.