Advances in Mobility Management for IP Networks

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HIERARCHICAL MOBILE MULTICAST CONTEXT TRANSFER (HMMCT)

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27.1 INTRODUCTION

The hierarchal mobile multicast context transfer is a combination between the multicast HMIPv6 for the intra-domain mobility and the multicast context transfer for the inter-domain mobility. This HMMCT has been proposed to provide a seamless handover and to reduce the disruption for the mobile nodes whether they move within the same MAP domain or different domains and to allow the mobile nodes to receive the packets during the handover efficiently especially for real-time services and application.

27.2 HMMCT

As it has been said earlier the M-HMIPv6 protocol used to provide a seamless handover for the MH within the same MAP domain as it hides the mobility of the MH from the HA. In HMIPv6 mobile multicast, the MH doesn't need each time it moves to a different access router in the MAP domain to send a group membership message to the MAP and also doesn't need to send binding update to the HA, since the MAP works as a local home agent. For that reason the signaling cost is reduced and no tree reconstruction is involved and the packets loss is reduced too.

However there are some limitations come with the HMIPv6 mobile multicast when a mobile host moves to a new MAP domain as stated in the design issues. So the proposed architecture HMMCT concerns to solve these problems by utilizing the multicast context transfer between two different MAP .The context transfer can reduce the time needed to re-establish the service since the multicast context transfer block will be transferred between the two MAPs before the handover is completed so all the information needed for the MH to join the multicast group is already transferred and the MH can join the multicast group as soon as the mobile node moves to the new MAP domain.

Also the signaling cost will be reduced since the communication is localized between the two MAPs and the mobile node doesn't need to send the group membership message again to the MAP since the MAP already received the information needed for that in the multicast context transfer block. Fig. 27.1 shows the HMMCT environment.