

Advances in Mobility Management for IP Networks

Editors:

Aisha Hassan Abdalla Hashim

Othman Khalifa

Shihab A. Hameed



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SIMULATION EVALUATION OF HMMCT

ABDULRHMAN MOHAMMED BIN MAHFODII, ABDI NASIR AHMED, AISHA HASSAN
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28.1 INTRODUCTION

Since NS-2 includes only the base MIP protocol in the core simulator, the researchers made a lot of research trying to implement the new IP mobility protocols. So in order to implement them the protocols and the support modules should be maintained as external contribution. And this is considered as a high level contribution because it needs an extensive programming code using object oriented programming C++ also then it needs to implement or integrate the protocol or the different protocols in common scenarios using object-oriented OTcl framework.

Usually these contributions are done by a group of people, for example Mobiwan, which support the Mobile IPv6, and almost all such modules are publicly available for research with open licenses. However, they are typically tied to the particular version of NS2 that the code has been branched-off from and changing these extensions to work for one's new protocol is very difficult unless if some assumptions have been made to meet the requirements of the protocol, also it needs extensive understanding of the C++ file of the extension. So it is better to start one's own extension from scratch.

28.2 SIMULATION EVALUATION

When it comes to this stage, at the beginning so many problems have been faced as it has been mentioned earlier no support for the HMIPv6 in the NS-2 and also the context transfer protocol which are the main elements of the proposed protocol HMMCT. So numbers of assumptions have been made to meet the requirement of the project and also some other modification for the NS-2 is needed to support the mobility in this case.

Fig. 1 is a simplified figure of the network topology of the HMMCT for the simulation. And the discussion of the simulation scenario is started by first setting the network in general, which includes the channel type used is a wireless channel since the protocol deals with wireless networks and 802.11 is the access technology. The type of antenna used is Omni Directional antenna. And the number of the mobile nodes sets to four, the number of the wired nodes is two and the number of the wireless nodes is four. And the total simulation time is set to 105s.

The number of domain in the topology is 5 since the arrangement of the nodes is a hierarchical and since each AR considered as one domain and the other wired nodes is one domain. And then the address of each node is set and also the MAPs, the ARs and the MN are all configured to work correctly with this topology.