A Predictive Routing Protocol in Ad-Hoc Wireless Network

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Abstract. Much research has been done on designing Ad-Hoc routing protocols and some well known protocols have been implemented. However, one of the major drawbacks in the existing state-of-the-art protocols, such as AODV (Ad-Hoc On-demand Distance Vector) routing protocol, is that the time-varying nature of the wireless channels among the mobile hosts is ignored. This is a serious default in design because the varying channel quality could lead to very poor overall route quality and resulting in low data throughput. In this work, a newly-developed Ad-Hoc routing algorithm is proposed to dynamically change the routing paths according to the channel conditions. Extensive simulation results have indicated this protocol would be more efficient under the condition of busy network and time-varying topology.

1 Introduction

Generally speaking, wireless network can be classified into two types: One is with infrastructure, mobile hosts contact one another via base station; the other is Mobile Ad-Hoc Network (MANET), which is composed only of mobile nodes and the message would be passed around before it reaches its destination. But, in the Ad-Hoc case, it would be difficult to balance its real-time property and the network resources. Therefore, in order to achieve faster communication with less utilization of wireless network resources, Ad-Hoc wireless network routing is the field worthy of further exploration.

Since the support of base station is not available in the Ad-Hoc wireless network, the mobile stations have to carry much network information and update according to its own movement to maintain the effective flowing