

HYBRID MOBILITY PREDICTION OF 802.11 INFRASTRUCTURE NODES BY LOCATION TRACKING AND DATA MINING

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Abstract - In an IEEE 802.11 Infrastructure network, as the mobile node is moving from one access point to another, the resource allocation and smooth hand off may be a problem. If some reliable prediction is done on mobile node's next move, then resources can be allocated optimally as the mobile node moves around. This would increase the performance throughput of wireless network. We plan to investigate on a hybrid mobility prediction scheme that uses location tracking and data mining to predict the future path of the mobile node. We also propose a secure version of the same scheme. Through simulation and analysis, we present the prediction accuracy of our proposal.

Keywords: Mobility prediction, mobility management, mobility patterns, location tracking, data mining.

1. INTRODUCTION

The mobility management in wireless networks covers the options for storing and updating the location information of mobile users who are connected to the system. An interesting topic of research in mobility management field is mobility prediction. Mobility prediction can be explained as the prediction of a mobile user's next movement where the mobile user is traveling between the nodes or access points of a wireless network. The predicted path or movement can help increase the efficiency of wireless network, by effectively allocating resources to the most probable access point (that can be the next point of attachment) instead of blindly allocating excessive resources in the mobile nodes neighborhood of a mobile user (Saygin and Ulusoy, 2002), (Gok and Ulusoy, 2000). This paper is organized as follows. Section