Mobile Database System: Role of Mobility on the Query Processing

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***Abstract*—The rapidly expanding technology of mobile communication will give mobile users capability of accessing information from anywhere and any time. The wireless technology has made it possible to achieve continuous connectivity in mobile environment. When the query is specified as continuous, the requesting mobile user can obtain continuously changing result. In order to provide accurate and timely outcome to requesting mobile user, the locations of moving object has to be closely monitored. The objective of paper is to discuss the problem related to the role of personal and terminal mobility and query processing in the mobile environment.**

Keywords- Mobile Computing, Mobile Database, Location Management, Location Dependent Data

I. Introduction

Recent advances in hardware technology and wireless communication networks have directed to the emergence of mobile database systems [1,2]. The mobile computing environment provides database applications with useful aspects of wireless technology, which is known as mobile databases. This advance technology has created a new age of nomadic database users. These users are accessing a database through a network. Basically, a user with a wireless connection to the information network does not require maintaining a fixed position in the network.

In mobile environment, elements of the network are very dynamic and can be extremely volatile. Consider a database representing information about moving objects and their position in addition to information about stationary objects [5]. For example, a mobile user looking for a restaurant will obtain different results based on the time and the place he/she issued the query. As the location of other devices changes with respect to other entities and data sources are constantly in movement it may not be possible to collect information about available data sources at any given point of time. As the mobility is the most distinguishing feature of the mobile computing system, location becomes an important piece of information for location-dependent queries [16, 17]. Query may be issued from a moving object (e.g., car of a mobile user) or from a stationary user. Consequently, the answer to a location dependent query may depend on the location of the mobile host (MH) which issued the query and/or the locations of the objects represented in the database. Therefore, an optimal query processing subsystem of a mobile database has to take the strategy used by the location management component into account for answering queries.

The remainder of the paper is organized as follows. In Section 2, we introduce architecture of mobile environment. In Section 3, we describe the role of mobility. Section 4 presents the effect of mobility in mobile environments. Section 5 we study the Query processing system in mobile environment. Finally section 6 concludes the paper.

II. Architeure of Mobile Environment

Figure 1 shows the existing and widely architectural model of a system that supports mobile computing [19,20]. We have added a number of DBSs (database servers) to incorporate database processing of capability without affecting any aspect of the generic mobile network. A set of general purpose computers (PCs, workstations etc) are interconnected through a high speed wired network.

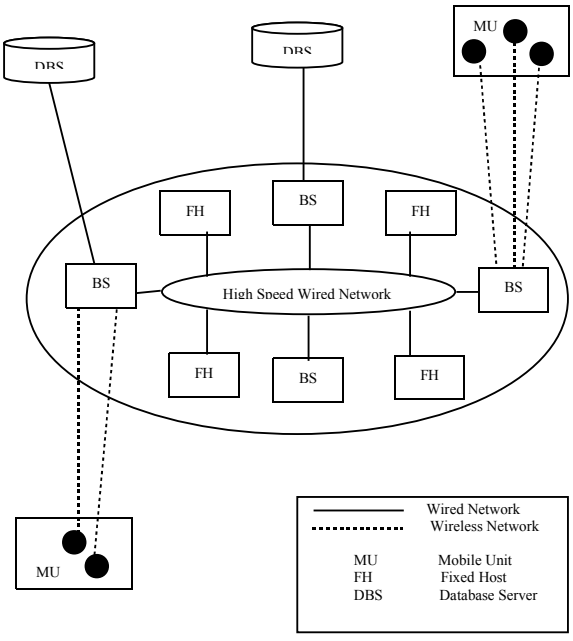

Figure1. Architecture of Mobile Environment

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