MobiSnap

Managing Database Snapshots on a Mobile Environment
INTRODUCTION

The main goal of the MOBI$\text{SNAP}$ project is to provide methodologies and tools to deploy database applications on mobile computers.

The connectivity patterns that characterize mobile computing (connections are often degraded, expensive or unavailable) call for a different approach to the construction of distributed applications. Additionally, applications must fit the small computing and storage constrains of mobile devices.

In the MOBI$\text{SNAP}$ project, these problems are addressed in the context of mobile access to legacy database systems, which in our vision is one of the most significant application areas in this trend.
Main Problems

When using mobile computers users should be given read and write access to central databases even when disconnected.

The solution can be based on the caching of database snapshots, together with deferred updates on both directions. This raises problems of cache and transaction consistency that must be delimited with divergence control techniques.
Main Goals

- Support legacy database systems by adopting SQL as the interface with the system components on the support stations.

- Develop adequate caching mechanisms with divergence risk assessment supported by specification of divergence metrics.

- Develop a mobile transaction model that tolerates the connectivity and consistency restrictions typical of these environments.

- Integrate user notifications (about risk, divergence, etc) propagated by asynchronous communication means, such as the GSM short message service.
ARCHITECTURE

MOBI SNAP depicts a server component on the support stations and a client on the mobile units. The stationary component monitors changes and divergence on the relational database, notifies the client and handles client-originated updates, while clients act on database snapshots and assess their own divergence.
RESULTS

Dissemination of the project results will be achieved by placing prototypes of the system, demo applications and preliminary reports in the WWW sites of the team, in order to allow fast delivery to other research teams. Preliminary reports will support the production of papers and presentations.

As the project also plans to integrate Master and PhD students, as well as final year students, it is expected to give an extended contribution to the formation of young scientists.
Resources

The team gathers researchers from Algoritmi (Minho) and CITI (UNL), that jointly hold considerable experience on mobile computing and remote cooperative work.

The requested resources for this project encompass standard equipment for mobile computing with support stations, while most of the financial share is devoted to research grants that will contribute to the formation of young researchers.