

Data Repository on a Distributed Mobile Platform

By
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This dissertation was submitted to the
Department of Computer Science and Engineering
of the
University of Moratuwa
in partial fulfillment of the requirements for the
Degree of MSc in Computer Science specializing in Software Engineering

University of Moratuwa



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Department of Computer Science and Engineering
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August 2007

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Declaration of Authenticity

I hereby declare that the following thesis is the result of original, authentic, work by the author in which all relevant sources are properly cited and acknowledged. No sources, equipment or materials other than those mentioned have been used.

The material published here in has not been submitted elsewhere in part or whole with the aim of receiving credit towards a degree, or with the aim of publication prior to submitting this dissertation.

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Dr. Gehan Weerasinghe

(Supervisor)



Abstract

Distributed systems are found almost everywhere in today's computer environment and they are used for a wide variety of tasks ranging from routine office work done on typical personal computers to cutting-edge scientific research performed on high-end machines. They are becoming more and more sophisticated as time goes by as a result of the work carried out by a large number of researchers and the experience gained by professionals who use distributed systems. This trend is expected to continue in the foreseeable future, resulting in more and more advanced applications.

The rapid growth in the use of mobile phones and the increasing computing power of these devices has resulted in mobile platforms becoming increasingly important in the domain of information and communication technology. These platforms that barely existed a decade ago, have now become one of the most interesting research areas. At the same time, they are becoming more and more sophisticated with each new version of the platforms. The Symbian Operating System is one of the leading platforms among such operating systems for mobile devices.



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This dissertation presents the results of a research work carried out to explore the interesting intersection between distributed computing and mobile computing paradigms and the use of distributed systems in mobile platforms, which would clearly be an important domain in tomorrow's computer environment. As the outcome, a distributed data repository was built on a mobile platform with devices running Symbian Operating System and the chosen communication technology was GPRS.

This research will serve as a basis for anyone interested in implementing a distributed mobile data repository (either for academic purposes or for commercial applications). Additionally it will also help to add a community aspect to the emerging technologies and applications in mobile computing.

Acknowledgement

This dissertation is the result of hard work of more than a year which would not have been possible without the support of many people.

First, I would like to express the deepest appreciation to my supervisor Dr. Gehan Weerasinghe who initially proposed the idea to develop a distributed data repository on a mobile platform. I am deeply indebted to Dr. Gehan Weerasinghe whose guidance, stimulating suggestions and encouragement helped me to complete the research successfully.

I also would like to express deep gratitude to Dr. Sanath Jayasena our MSc Coordinator who was instrumental in creating a high quality Master's program and for providing guidance and support in research work also in various capacities. I would also like to thank the Department Head, Mrs. Vishaka Nanayakkara and the rest of the CSE department staff and Prof. Dileeka Dias from the Electronics Department for their invaluable support and guidance.

Finally, the authors of the various references used, are also acknowledged with gratitude.

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Symbols, Notations, Abbreviations and Acronyms

OS	Operating System
GSM	Global System for Mobile Communications
GPRS	General Packet Radio Service
3G	Third Generation
TCP/IP	Transmission Control Protocol/Internet Protocol
SDK	Software Development Kit
DBMS	Database Management System
API	Application Programming Interface
SMS	Short Messaging Service
STL	Standard Template Library
SQL	Structured Query Language
DDL	Data Definition Language
DML	Data Modeling Language
RDBMS	Relational Database Management System
IDE	Integrated Development Environment
MVC	Model-View-Controller
SIM	Subscriber Identity Module
SMS	Short Messaging Service
TDMA	Time Division Multiple Access
FDMA	Frequency Division Multiple Access
DNS	Domain Name System
RMB	Right Menu Buttons