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# A NEW FILE SYSTEM FOR MOBILE COMPUTING

A Dissertation

Submitted to the Graduate School

of the University of Notre Dame

in Partial Fulfillment of the Requirements

for the Degree of

Doctor of Philosophy

by

John Saldanha, B.Tech., M.S.E.E.

*David L. Cohn*

David L. Cohn, Director

Department of Computer Science and Engineering

Notre Dame, Indiana

November, 1996

# A NEW FILE SYSTEM FOR MOBILE COMPUTING

Abstract

by

John Saldanha

The recent proliferation of portable computers, the introduction of a variety of pocket-sized computing devices and the rapid expansion of computer networks provide great promise for a future in which mobility of both users and computers will be standard. However, these developments also invalidate many of the assumptions made by current system software, which was designed for stationary systems and users.

An important component of system software that needs redesign for mobility is the file system. Ideally, a user should be able to access the files he or she needs regardless of location. Although existing distributed file systems such as Coda provide a partial solution by supporting disconnected operation of clients, significant deficiencies remain. For example, the distributed file system is unavailable at isolated computers. This work argues that the limited availability results from the strict client-server model used and proposes a looser model.

A design based on this relaxed model is presented. It utilizes a *persona carrier*, a computer that accompanies its owner at all times, as the bridge between isolated comput-

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