MAIS
Multichannel Adaptive Information Systems

Titolo

PoLiDBMS: Design and Prototipe Implementation of a DBMS for Portable Devices

Gruppo/i di ricerca

Politecnico di Milano

Tipologia di trovato che s'intende tutelare:

- sw per gestione database

Breve descrizione

Very Small DataBases (VSDB) require a complete framework for database design and management in a complex environment where databases are distributed over different systems, from high-end servers to reduced-power portable devices, including cellular phones, PDA's and Smart Cards. Within this framework the architecture of PoLiDBMS, a Portable Light Database Management System has been designed to be hosted on such portable devices, in order to efficiently manage the data stored in Flash EEPROM memory, optimising performance, power consumption, and endurance of read/write operations of the storage medium.
A flexible and modular solution has been adopted with the aim of allowing the development of a system able to be customized in its features, depending on the needed functionality and the available processing power. The first prototype implementation provides all the elementary functionalities of a DBMS, supporting a reduced set of the SQL language that can be of interest in such a limited environment

Parole chiave in inglese
access methods, data structures, flash memory, mobile devices, personal information systems.

Miglioramenti e vantaggi rispetto alle attuali tecnologie

Current portable DBMS are generally either extensions of a simple file system or light versions of standard DBMS packages. Data management in the latter systems is strongly dependent on the link with the "parent" DBMS, and basically offers synchronisation functionalities with a fixed Database. Algorithms and data structures mimic the same disk based ones of the parent DBMS.
PoLiDBMS is specially tailored to be a stand alone DBMS, even if with a reduced functionality set depentent on the device capability, optimising algorithms and data structures in order to cope with the underlying storage features

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Pubblicazioni o sottomissioni a conferenze

Bolchini C., Salice F., Schreiber F.A., Tanca L. - Logical and physical design issues for smart card databases - ACM Transactions on Information Systems, Vol. 21, n. 3, pp. 254-285, (2003)

Bolchini C., Schreiber F.A. - Smart Card Embedded Information Systems: a Methodology for Privacy Oriented Architectural Design - Data and Knowledge Engineering, Vol. 41, n. 2-3, pp. 159-182, (2002)

Bolchini C., Curino C., M. Giorgetta, A. Giusti, A. Miele, Schreiber F.A., Tanca L. - PoLiDBMS: Design and Prototype Implementation of a DBMS for Portable Devices - Proceedings SEBD 2004, S. Margherita di Pula, Giugno 2004, pp.166-177

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