

The Current Issue

Database technology is now ubiquitous. Indeed, it is increasingly hard to avoid. But it is no longer restricted to “computers”. Indeed, I would not be surprised to find a database as part of my toaster at some point. Databases are already a part of cell phones, music players, TV set top boxes, and just about everything else within the domain of consumer electronics. There are a couple of fascinating aspects of this database triumph.

1. A user does not “see” a database. Rather, the database is completely embedded within an application and its functionality is accessible via a user interface that is specialized to the task at hand, e.g. storing and retrieving songs in a portable music player.
2. The database is frequently transported, within a portable device. This requires that the database system have a much smaller code footprint than we have come to expect in our computer servers. It also means that the database system must be prepared to deal with flash storage and take power dissipation into account.

Both the above considerations change in dramatic ways, the implementation of database systems.

1. The fact that the user does not see the database means that the database interface need not be SQL. Indeed, it need not be relational, and it might have rather circumscribed functionality. This can make the query processing task and the related physical database design task more simple and enhance the self-managability of the system.
2. The new portable platforms present a new set of hardware architectures and hence a new set of design considerations in the building of a database system. For example, if flash memory is used, then the database system implementer needs to understand the write/erase characteristics of flash, and design the appropriate storage structures.

Anastasia Ailamaki has assembled the current issue of the Bulletin on the subject of “Embedded and Mobile Database Systems”. In the tradition of the Bulletin, the issue contains an interesting mix of articles from both university researchers and industrial database specialists. The issue both describes this exciting area and sheds light on interesting aspects of how new database systems are dealing with what is both an opportunity and a challenge. I want to thank Natassa for her fine job as editor of this issue, which should be interesting reading for many in our community.