

**11th International Conference on Mobile Data Management (MDM 2010)
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<http://www.sce.umkc.edu/mdm2010>

List of Demos

1. *A New Approach for Spatiotemporal Pattern Queries in Trajectory Databases*

Mahmoud Sakr, Ralf Hartmut Güting

In this paper, we demonstrate our results of designing and implementing spatiotemporal pattern queries. That is, one can specify temporal order constraints on the fulfillment of predicates on moving objects. Compared with other approaches, our approach is not restricted in terms of the types of moving object or the sets of predicates. Our work covers the language integration in SQL, the evaluation of the queries, and the integration with the query optimizer. We provide a complete implementation in C++ and Prolog in the context of the SECONDO platform. The implementation is made publicly available online as a SECONDO Plugin. We have also made available automatic scripts for executing the examples in this demonstration.

2. *Pcube: A System to Evaluate and Test Privacy-Preserving Proximity Services*

Dario Freni, Sergio Mascetti, Claudio Bettini

Proximity services are a particular class of location-based services (LBS) in which a subscriber is alerted when other participants (called buddies) are nearby. Existing works in the field of privacy preservation in LBS propose techniques specifically designed for this type of service. The objective of this demo is to present the Pcube system that makes it possible to visually show the different performances of these techniques in terms of privacy protection and precision of the service. The system includes a server component providing the proximity service, a web-based client application and a client application for mobile devices. Four different privacy-preserving techniques existing in literature have been implemented and will be compared during the demo, with a particular focus on the evaluation of the recently proposed Longitude protocol.

3. *OrientFlash DB: A Flash-aware Random Write Optimized Database*

Da Zhou

Solid State Drive (SSD), as new data storage media with low power consumption, high shock resistance and lightweight form, has been widely used in laptops during the past few years. The most attractive characteristic of SSD is the high random read speed because of no mechanical latency. However, poor random write performance becomes the bottle neck in wider applications. Random write is almost two orders of magnitude slower than both random read and sequential access. In our OrientFlash DB based on Berkeley DB (BDB), we propose to insert unmodified data into random write sequence in order to convert random writes into sequential writes, and then data sequence can be flushed at the speed of sequential write. Further, we optimize the write performance by reducing quantity of unmodified data to be inserted. In this demo, we visualize the progress and results when a write sequence is run by BDB on Hard Disk Drive (HDD), BDB on SSD and OrientFlash DB on SSD respectively. Besides this, we can select different benchmarks to test the

performance of our OrientFlash DB, such as random write model, TPCC, file system benchmarks and file IO benchmarks.

4. *Data-based Agreement for Inter-Vehicle Coordination*

Brahim Ayari, Abdelmajid Khelil, Kamel Saffar and Neeraj Suri

mobile entities such as adhoc networked (autonomous) vehicles. In our work, we focus on data-based agreement using database transactions where mobile entities agree on a set of coordinated tasks that need to be performed by them in an atomic way. Atomicity means that all transaction participants agree on a set of tasks which will be performed by them or no one of them is performing any task. The data about the agreed tasks and their corresponding stakeholders are kept in local databases as a proof for the obtained agreement. This proof might be needed by users and regularities/authorities involved depending on the application scenario. In this demo, we demonstrate our effort to provide for partition-aware atomic commit protocols for transactional data-based agreement.

5. *Efficient Simulation Architecture for Routing and Replication in Mobile Peer to Peer Network of UAVs*

Hemanth Meka, Sanjay Madria, Mohan Kumar, Mark Linderman and Sharma Chakravarthy

Most of the replication and routing algorithms assume the network to be large and therefore, the architecture and algorithms are designed to be scalable. These algorithms however may not perform well with limited number of nodes in a network of UAVs. It is better to design and simulate such algorithms to increase the efficiency in a small network as scalability is no longer an issue. For such networks, we design and simulate some effective routing and replication algorithms to route packets, disseminate information, and replicate data among nodes.

6. *Dessy: Demonstrating mobile search and synchronization*

Eemil Lagerspetz, Sasu Tarkoma, Tancred Lindholm

The storage capacity of smartphones has reached tens of gigabytes, while the search functionality remains simple. We have designed a search and synchronization framework for mobile devices, called Dessy. Dessy has been designed with mobility and device constraints in mind. It requires only MIDP 2.0 Mobile Java with FileConnection support, and Java 1.5 on desktop machines. This paper demonstrates the application in practice, using multiple devices and synchronizing files between a desktop computer, a laptop, smartphones, and the Internet. Smartphones and laptops are able to search for files hosted on other devices as well as on the Internet. Unnecessary search operations are avoided using Bloom filters.