Title: Implementing True Serializable Transactions: The Pyrrho V7 experiment

Organizers:

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Tutorial description:

Serious information systems, e. g. banking, booking systems, product planning and control, require the correct processing of transactions, i. e. enforcing strict Atomicity, Consistency, Isolation, Durability (ACID rules).

In this tutorial we consider the usability of methods that help to enforce ACID for DBMS. Our viewpoint is that full isolation of transactions requires truly serializable transactions. Pyrrho DBMS developed by Malcolm Crowe always had this goal. Now, version 7, using immutable, sharable data structures for program code and append semantics for the database takes a further step towards Views as implements of operations on the possibly remote base tables and columns identified by URLs. This enables data integration using simple REST-views.

During the tutorial some live demos will illustrate

1. the operation of the transaction log,
2. validation checking during commit of a transaction,
3. View definition and operations, and
4. Consistency on REST-view operations.

Materials to be distributed to the attendees:

- The presentation slide set
- Tutorial will have downloadable open-source software for attendees to run the demos on their own computers (Windows or Linux)
- Each of 4 demos will have PDF step-by-step instructions and videos.

Target Audience: -Participants should know the basics of DBMS and transactions

Duration: 1 ½ hours (?)

Learning objectives:

After completing the tutorial, the participants have a deeper understanding of the implementation of a DBMS and the ACID concept. The participants will be able to successfully assess Pyrrho's strict ACID implementation and View concept.