# DEMONSTRATION PROPOSAL

## AZDBLab: A Laboratory Information System for Large-Scale Empirical DBMS Studies

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## Introduction

Scientific methodology in the database field can provide a deep understanding of DBMS query optimizers, for better engineered designs.

Few *DBMS-centric* labs are available for scientific investigation; prior labs have focused on networks and smartphones.

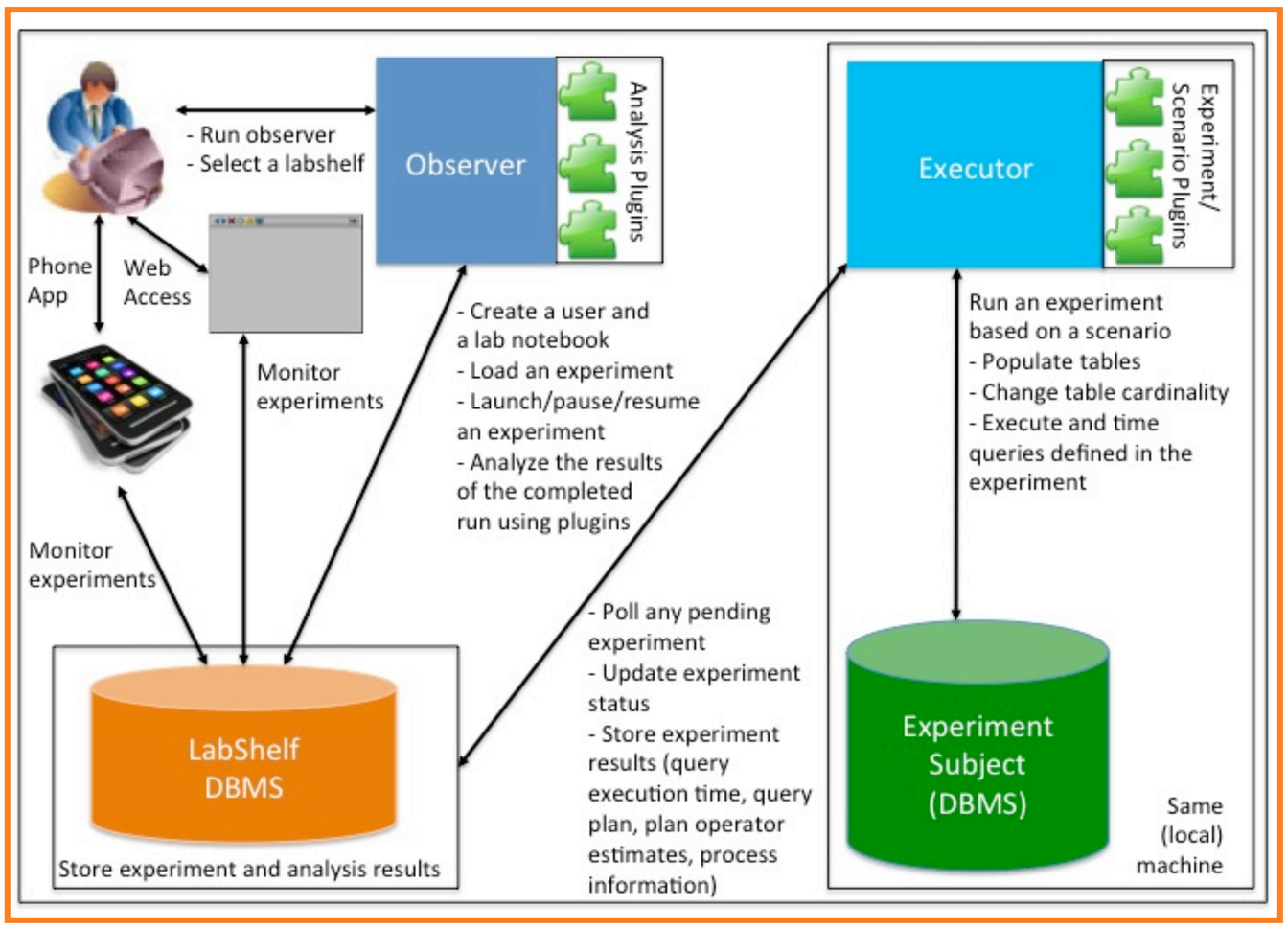
## AZDBLab (AriZona DataBase Laboratory)

- Has been in development for seven years.
- Assists database researchers to conduct *large-scale empirical* studies across *multiple* DBMSes.
- Runs massive experiments with thousands or millions of queries on multiple DBMSes.
- Supports as experiment subjects seven relational DBMSes supporting SQL and JDBC.
- Provides robustness to collect data over **8,277** hours running about **2.4 million** query executions.
- Conducts automated analyses on multiple query execution runs.

## Contributions

- Novel research infrastructure, dedicated for large-scale empirical DBMS studies
- Seamless data provenance support
- Several decentralized monitoring schemes: *phone apps*, *web apps*, and *watcher*
- Reusable GUI
- Extensibility through a variety of plugins: labshelf, analysis, experiment subject, and scenario

## AZDBLab Architecture




## Demonstration

Step 1: Choose a labshelf, add a user, and create a notebook, a paper, and a study in the paper on the Observer GUI.

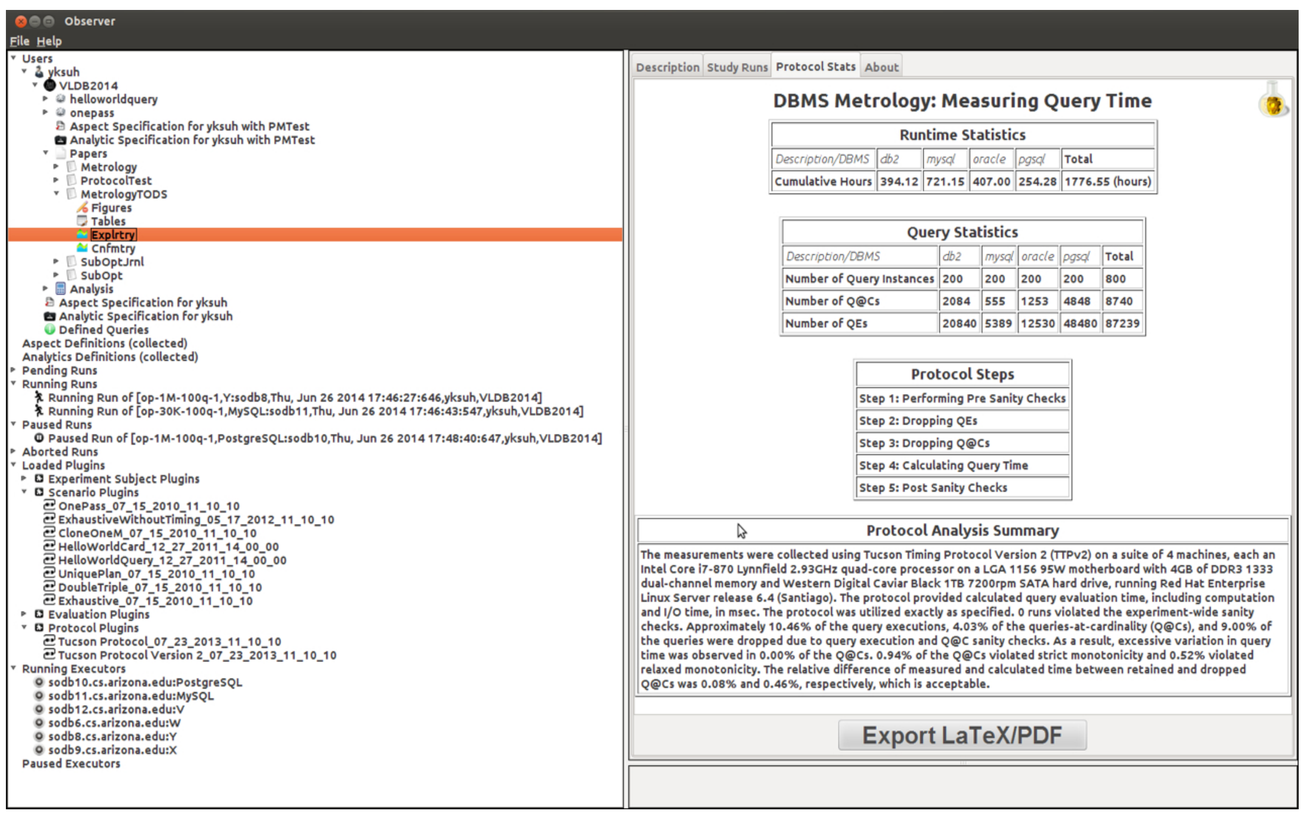
Step 2: Load an experiment specification into the notebook.

Step 3: Schedule an experiment run on a particular DBMS.

Step 4: Monitor the run status via Observer, a web app, and a mobile app, and wait for the experiment to be done.

Step 5: Add the completed experiment run to the study and conduct a timing protocol analysis for the study.

Step 6: Produce LaTeX/PDF documents containing the analysis results.

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