Architecture for Modern
Database Benchmark

Background
Web applications provide services to increased number of users, need to scale over concurrent
user accesses, and involve DBMSs to safely manage business data shared between concurrent
users. Right DBMS can be chosen by running a benchmark. It is important that such modern
benchmark allows having different web application architectures and scaling number of
concurrent users. It should be possible to implement applications using novel architecture
supported by Starcounter DBMS. Starcounter is the fastest high performance database for real-
time transactional applications. Its In-memory, ACID-compliant technology reduces hardware
costs by orders of magnitude. Important Starcounter innovation is integration of the DBMS with
application virtual machines. Currently, the integration supports .NET.

Purpose and Scope
The purpose of this project is to design a modern database benchmark to evaluate concurrent
user scalability, implement it in a prototype and run against Starcounter and another DBMS.

The following tasks are included in the project:
- Research the state-of-the-art in database benchmarking
- Analyze requirements for the modern database benchmark
- Design the benchmark and implement it in a prototype
- Install test environment and DBMSs on test machines
- Run the benchmark prototype against DBMSs and analyze result

The project is intended for one or two students.

Experience and Knowledge requirements
- Deep program development experience
- Good knowledge of different databases
- Experience in .NET
- Experience in administrating software, network and OS
- Experience in performance testing
- Knowledge needed to perform thesis work

Presentation of results
The project should result in a working prototype and a report.

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