Auditing process for the LDBC Social Network Benchmark (SNB)

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Description

This document summarizes the auditing process for the workloads of the Linked Data Benchmark Council's Social Network Benchmark. We hope that vendors interested in commissioning an official LDBC audit find this document helpful for planning their audits.

Disclaimer

Please note that this document intends to provide a short summary. The definitive documents describing the organizational and technical aspects of the LDBC SNB auditing process are LDBC's byelaws and the latest SNB benchmark specification, and are subject to change.

Definitions

- An *LDBC benchmark workload* consists of a detailed benchmark specification, including the data sets, queries, update operations, scheduling, and validation rules used for the benchmark. The specification also regulates the eligibility of systems for audits.
- The *Test Sponsor* is the entity commissioning and LDBC audit. Typically, the test sponsor is a database, hardware, or cloud vendor.
- The *system-under-test* is the hardware-software configuration that participates in the benchmark.
- The *Auditor* is an individual expert, who is certified by LDBC to conduct audits for a given LDBC benchmark workload.
- The *Full Disclosure Report (FDR)* is a detailed document that describes the benchmark environment, the system-under-test, and the results achieved. The FDR consists of approx. 50 pages.
- The *Executive summary* is a single-page summarizing the benchmark results.

Prerequisites of an audit

- **The Test Sponsor shall be an LDBC member organization.** While LDBC members *can* conduct a large number of activities, becoming a member organization only requires the Test Sponsor to agree to LDBC's membership agreement, sign up to become a member, and pay a membership fee. It does not require the Test Sponsor to join the Members Policy Council. It also does not require the Test Sponsor to join any of LDBC's task forces or working groups.
- **The Auditor must pass the LDBC auditor certification.** This exam is conducted by the SNB task force.
- **If the Test Sponsor is not an LDBC sponsor member company, it shall pay the LDBC the auditing fee.** As of 2024, the auditing fee is 2,000 GBP.

The auditing process

- The Test Sponsor shall fill the SNB audit questionnaire
  - Questionnaires: [Interactive workload](), [BI workload]()
  - The initial submission of this form does not need to be 100% complete (e.g. there can be missing expected performance results) – but it should be complete enough to help the Auditor identify potential issues w.r.t. compliance with the auditing guidelines.
  - The Test Sponsor shall create an initial version of the supplementary package of the benchmark.
- The Test Sponsor and the Auditor shall negotiate the timeline and pricing, and sign a contract.
- The Test Sponsor hands over the final questionnaire and supplementary package to the Auditor.
- The Auditor performs the audit.
  - During the audit, the Auditor may communicate with the Test Sponsor via emails, online meetings, DMs, etc.
  - The audit consists of the following steps
    - Set up the system-under-test
    - Run cross-validation on SF10
    - Perform the code review
    - Run ACID isolation tests
    - Perform recovery tests
    - Conduct benchmark runs
    - Write FDR
    - Write the Executive Summary
- The Test Sponsor reviews the FDR and Executive Summary documents.
- The Auditor, the Test Sponsor, and the SNB Task Force lead sign the FDR. This typically happens via electronic signature.
- The audit results are announced publicly:
  - Posted on the LDBC website: https://ldbcouncil.org/benchmarks/snb/
  - On the LDBC Members Policy Council mailing list: members-council@ldbcouncil.org
  - On Twitter: https://twitter.com/ldbcouncil
  - We can also publish a blog post about the new results upon request

Timeline

A rough estimate for the audit's timespan is the following:
- Applying and getting accepted to the LDBC takes approximately 1-2 weeks.
- Finding a suitable auditor and arranging a contract typically requires 4-6 weeks.
- The audit itself takes between 2-4 weeks.

The application to LDBC and the arrangements for the auditing can happen concurrently, so the overall time required for an audit is between 6 and 10 weeks. Holidays and technical hiccups can push this a bit higher.

Pricing

The pricing of the audit is negotiated between the auditor and the Test Sponsor. The pricing depends on a number of factors:

- The number of scale factors included.
- The complexity of the system setup. LDBC's preference is to use a public cloud like AWS or the Alibaba Cloud but it is not a requirement.
- The complexity of the implementation. For example, imperative implementations require more time to review than declarative implementations using a standard language.
- The number of technical issues encountered during the auditing. This may not be related to the system under test, instead repeated re-runs may be necessitated due to running in noisy environments like the cloud.

The typical price for an auditing contract is in the range of 20,000 EUR to 100,000 EUR.