



Alternative Technologies

HOW TO PARTICIPATE

IN THE

DBMS SCALABILITY PROJECT

Purpose of the Study

The primary purpose of this effort is to evaluate the evidence that DBMS products and applications either do or do not scale. Typically, participants will be using a DBMS for projects that push one or more limits of the technology such as database size, numbers of concurrent users, transaction rates, transaction complexity, or architectural complexity. In short, the goal of the study is to develop case histories that characterize both success and failure for large scale or VLDB projects, the current state of the market, and ultimately, a set of guidelines for success. We hope to set the expectation level in the market by educating the analyst community and the public generally, while simultaneously providing valuable guidance to vendors and their customers.

Vendors and their customers can participate in the study at one of two levels. Level one participants help establish general information about the use of a DBMS in the industry. Level two participants help identify the specific configurations, tools, and techniques that result in scalable DBMS solutions, as well as the current limitations of the technology. We encourage all DBMS vendors and their customers to participate to the extent that they have qualified sites.

Level One Participation – Information and Interviews

This preliminary portion of the study is funded by Alternative Technologies and requires only the cooperation of the vendor or customer. Customers need not be in production with the product, although actual experience with the intended scale is important. Planned systems are also important, though of lower interest.

We want to obtain as much general, market characterizing information as possible. Such information will include:

- DBMS product being used
- business type
- application type
- size of database as implemented (total disk space allocated to the DBMS)

- amount of raw data (flat file space required) being supported
- number of connected and concurrent users
- a brief characterization of the physical environment (computer model, number of CPUs, and number of platforms if implemented as either a clustered or shared nothing architecture).

Level Two Participation – On-site Audit

As general information is collected from level one participants, we select (with the vendor's help) a few sites as candidates for level two participation, and that we can study in depth. Alternatively, a customer may propose to Alternative Technologies and their DBMS vendor that they would like to participate in the study. This portion of the study is being funded jointly by Alternative Technologies and the vendor (reimbursement of expenses), and requires only cooperation on the part of the customer. If a qualified customer wants to participate and their vendor is unwilling to fund the expenses portion of the site audit, the customer may elect to do so. It is to the vendor's advantage to help select a balance among sites that are clearly successful and those that have encountered some difficulty.

We will want to learn the customer's opinions, and any issues and concerns, both from technical staff and key management. Most important will be a characterization of the system in terms of numbers of concurrent users, raw data supported (initial, current, and expected growth rates), workload (application packages, read-intensive vs. OLTP, transaction rates, etc.), application and administrative tools used, platforms and physical resources being used, and complexity of database schema. I am also interested in what the customer views as the advantages (limitations) of the technology, especially where competitive products are perceived as having some limitation (advantage). By sponsoring such an independent study, the vendor obtains an objective and in-depth understanding of the state of their large scale or VLDB customer base, and its needs and problems.

The typical procedure involves spending at least one (but up to three) days on site in an intensive examination of the implementation and plans, including any special problems (or successes) the customer may be experiencing. The time is spent in demonstrations and interviews with key personnel. Identifying the configuration and administrative issues, understanding the database and application design, and characterizing load requirements and use are important goals. At the end of that time, I will produce a short report of my findings and recommendations, delivered orally (or in writing at my discretion).

Recommendations will address any problems the customer is encountering and may volunteer techniques for improving such things as administration, throughput, concurrency, or application design. This report will be shared with the sponsoring vendor, with the exception of any information which the customer does not wish shared with the vendor. I normally provide feedback and suggestions during the course of the investigation as well.

Preparing for the Site Audit

During the on-site phase of the effort, I will want to meet (as briefly as possible) with project managers, system administrators, DBAs, developers, those who can explain application requirements, and whoever can explain future goals and plans. I may ask system administrators or DBAs to obtain some system reports for me. I may want to look at some examples of application code and see a demonstration of the application in operation. The degree to which staff can be prepared to spend time with me, the more efficient and productive the process will be. They should feel free to ask questions at any time. Every effort will be made to minimize the commitment of time required by the customer.

In preparation for the visit, any advance information the customer can send to me will save time and make the effort more productive. Detailed and proprietary information will, of course, be held in strict confidence under the non-disclosure agreements we have in place with the vendor. In general, the more information sent, the better. I am used to absorbing large amounts of information during this phase of an effort, so there should be no hesitation to send anything that might be helpful. The following is a list of the kinds of documents that are typically helpful:

- a description of the business (an annual report or similar document is fine)
- a statement of the "charter" for the design/development group
- strategic planning documents
- group organizational chart (for orientation with respect to on-site interviews)

- an overall system architecture identifying hardware and software components (design, development, and production)
- database designs (entity-relationship diagrams, logical and physical table designs, table sizes, volatility, expected growth)
- system configurations (O/S, server, and network including parameter settings and product version numbers)
- a description of the applications which use the DBMS server emphasizing requirements and implementation
- typical transaction loads and definitions per database by application (it is important to identify the relative percentage of read only versus read/write transactions processed)
- identification of application development tools and end-users tools

If there are special topics that the customer wants addressed, we should be made aware of and agree upon those prior to the on-site phase of the audit (controlling scope will be very important). Should the customer decide that it is desirable for me to do a more extensive follow up, I will be offering a reduced fee arrangement on a first come, first served basis (obviously, the existing study has to have priority). The normal fee for the type of investigation I will be doing is about \$16,000.00 plus expenses (transportation and hotel costs), so the customer will be getting considerable value for their time and efforts.

As early as possible, I will be producing a report that will become publicly available. The report will be written so as to avoid disclosing confidential information, but will disclose information characterizing the site generally and without disclosing the customer's name. To this end, I will need to obtain guidance from the customer and will ask them to approve disclosure of the portion of report that pertains to them. I would, of course, prefer to have full disclosure approval in advance but recognize that this will not meet the concerns of most businesses.

If I am required to sign an NDA (non-disclosure agreement), we will do so subject to a standard amendment. This amendment states the publication intent and arranges for a brief review and editing period by the customer of the customer –specific portion of the report. The period will occur after completion and prior to publication. After the review period has elapsed, the report will be made public subject to any edits that have been completed by the customer as of that time. This procedure allows the customer sufficient control to avoid disclosure of proprietary information while guaranteeing that we can publish the report in a timely fashion.

We may elect to present the results of the study to the analyst community prior to making the report generally available. This will be done under non-disclosure so that we can share a bit more information than will be made publicly available. Once the report is presented to the analyst community, it is likely that analysts will want to verify the findings by contacting the customer and asking a few questions. We will need an agreement from the customer to cooperate in advance of the effort, and the identification of a contact that analysts may use. We do not expect more than a few analysts to follow up. No members of the press or public will be given customer identifying information if the participant requests in writing that it be withheld.

We would like to thank participants in advance. This promises to be an important study and we hope that everyone benefits from our combined efforts.

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Note: Collaborators in this effort have included Richard Skrinde of Strategic Partners (Alameda, CA) and Richard Winter of the Winter Corporation (Boston, MA).