# Context and motivation

The context for this work is the query optimizations decisions, the process of deciding which physical operators are used and in what order. Note that these decisions can affect the response time by several orders of magnitude and are therefore crucial in creating an optimally performing database. The proposed method is called *smooth scan* and its results are compared to those of a *full table scan*, an *index scan* and a *switch scan*.

The motivation for this article is the severe impact several scanning methods have on the total execution time, a response time which, in this day and age, becomes increasingly important. It also seems that the costs models for performance estimations deviate increasingly as the system becomes more complex. Combined with the fact that the complexity of modern workloads and the technological shift towards cloud environments, query optimization becomes increasingly important. Because of these reasons there is enough motivation to discuss a new scanning method for query handling.

The report also discusses the trade-off between CPU operations and I/O operations. Because it is possible to do several thousands of CPU operations in the time needed for one I/O operation, this trade-off is very often beneficial for the performance. Since the durations of these operations are subject to continuous change because of the fact hardware is always being improved, this too is a motivation for writing this article.