



Kandidat

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Performance Benchmark Comparison of Database Systems in regards to Spatial Big Data

Referent

Prof. Dr.-Ing. Reiner Jäger

Keywords

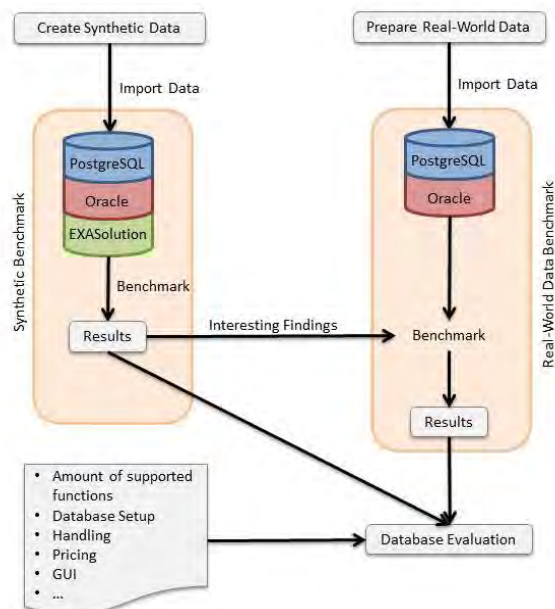
database, Oracle, PostgreSQL, EXASolution, big data, spatial data, benchmark, BigGIS

Zusammenfassung

This master thesis describes a benchmark conducted at Disy Informationssysteme GmbH. It has the goal to provide a benchmark, comparing the performance of three database systems, Oracle Database, PostgreSQL and EXASolution. The focus of the benchmark is entirely set on spatial data, simulating a big spatial data environment.

Before the benchmark comparison the thesis first gives an overview about big data, the used database systems and the different spatial data types used in the benchmark.

The benchmark itself consist of two parts, each part performs a benchmark based on different datasets. One of the used datasets is created as part of the study and serves as a synthetic test environment. The second dataset is taken from a real-world application from Disy.



Workflow of the Benchmark

The benchmark showed that, while working with spatial data, PostgreSQL is the best choice because of its performance, followed by Oracle which is reliable and can be very fast under optimal circumstances. Depending on the specific use case and the general framework of the database environment, both DBS can be used and both can provide a good DBS environment to work in. EXASolution showed good results but problems occurred on a regular basis. Further-more, the selection of spatial methods is very limited compared the other tested systems.