MASTER THESIS – NOSQL AND GRAPH DATABASE EVALUATION FOR EIFFEL EVENT DATA

Background
Eiffel is an open source protocol used to represent and maintain historic and live information about continuous integration, delivery and deployment processes (for instance, in large, decentralized software engineering projects). This information is represented as small, atomic JSON events, referencing other events and forming a traversable graph. The protocol itself and software implementations for emitting, collecting, storing, analyzing and visualizing the Eiffel data have been developed internally within Ericsson for several years, and are increasingly becoming available as open source solutions, with multiple software development tools being extended to generate and consume Eiffel event data.

Thesis Description
The current solution for Eiffel event persistence developed by Ericsson is based on MongoDB. However, a thorough evaluation of alternative database technologies, including graph databases, is lacking. It is reasonable to expect that other database technologies may enable increased performance, particularly for certain types of operations. The purpose of this thesis project is to develop approaches to use other database solutions instead of MongoDB, and to experimentally compare the performance and the scalability of these approaches when applied to Eiffel data. Possible candidate solutions to consider include other NoSQL databases as well as Neo4j, ArangoDB, OrientDB and ElasticSearch.

Qualifications
Students who want to work on this project should have read a course on Database Technology, and it is an advantage to have read TDDD43 Advanced Data Models and Databases.

Extent
1-2 students, 30hp each

Location
Ericsson AB Mjärdevi, Linköping

Preferred Starting Date
Spring 2018

Keywords
Eiffel, Databases, MongoDB, NoSQL, Open Source, Graph Databases, Performance, Experiment, Evaluation

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