COMPARATIVE STUDY OF NOSQL DATA STORAGE SOLUTIONS FOR A SOCIAL RECENT ACTIVITY FEED

HoGent

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CONTEXT

The Open Webslides project aims to improve the **co-creation discourse** between teachers and students by building on open and accessible web technologies.

The app stimulates co-creation by presenting the user with an quick overview of the **recent activity** by other users. This paper investigates the possibility of storing the recent activity events in a **NoSQL data store**.

METHODOLOGY

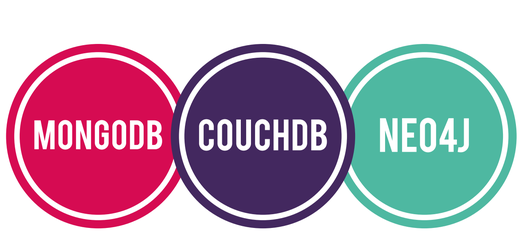
Only the most popular NoSQL data stores were included in the comparison. The selected data stores were then aggregated by several attributes in a use case based **comparative study**.

Logical and physical data models were subsequently developed in a **Ruby on Rails application** for these data stores. Five reference queries were also presented.

Finally, some performance measurements were discussed using these data models and queries.

FINDINGS

- MongoDB supports both **strong** and **eventual consistency** clustering
- Neo4j provides **transactions** as only data store
- CouchDB supports **master-master replication**



- CouchDB does not have sufficient **Ruby support**
- Execution time remains roughly constant for **query count** (number of events fetched in one query) over all reference queries
- Execution of **sequential queries** rises linearly over time
- Neo4j is several magnitudes **slower** than MongoDB

CONCLUSION

The **MongoDB** NoSQL data store is the perfect candidate to use as performant data storage architecture to store the recent activity events.

A **common querying language** for NoSQL data stores using the same data model could be developed to ease integration and migration for developers.

Similary, an **abstract data model** for NoSQL data stores could be designed as a middle layer between application and database, independent of vendor and data model.

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