REVERSE ENGINEERING

H2 DATABASE
RUNTIME TERROR

INTRODUCTION

This report explains the big picture of the system, precisely, it contains the following information.

1. A list of all stakeholders of the system (users, donors, developers, etc).
2. The functionality of the system, from a domain level perspective.
3. Key Developers of the system.

In addition to the above, we also present 5 open issues that we think we can take on.

STAKEHOLDERS:

A stakeholder of a software system is someone who affects or is affected by the software system, either directly or indirectly. Here we show a list of various stakeholders of the H2 database.

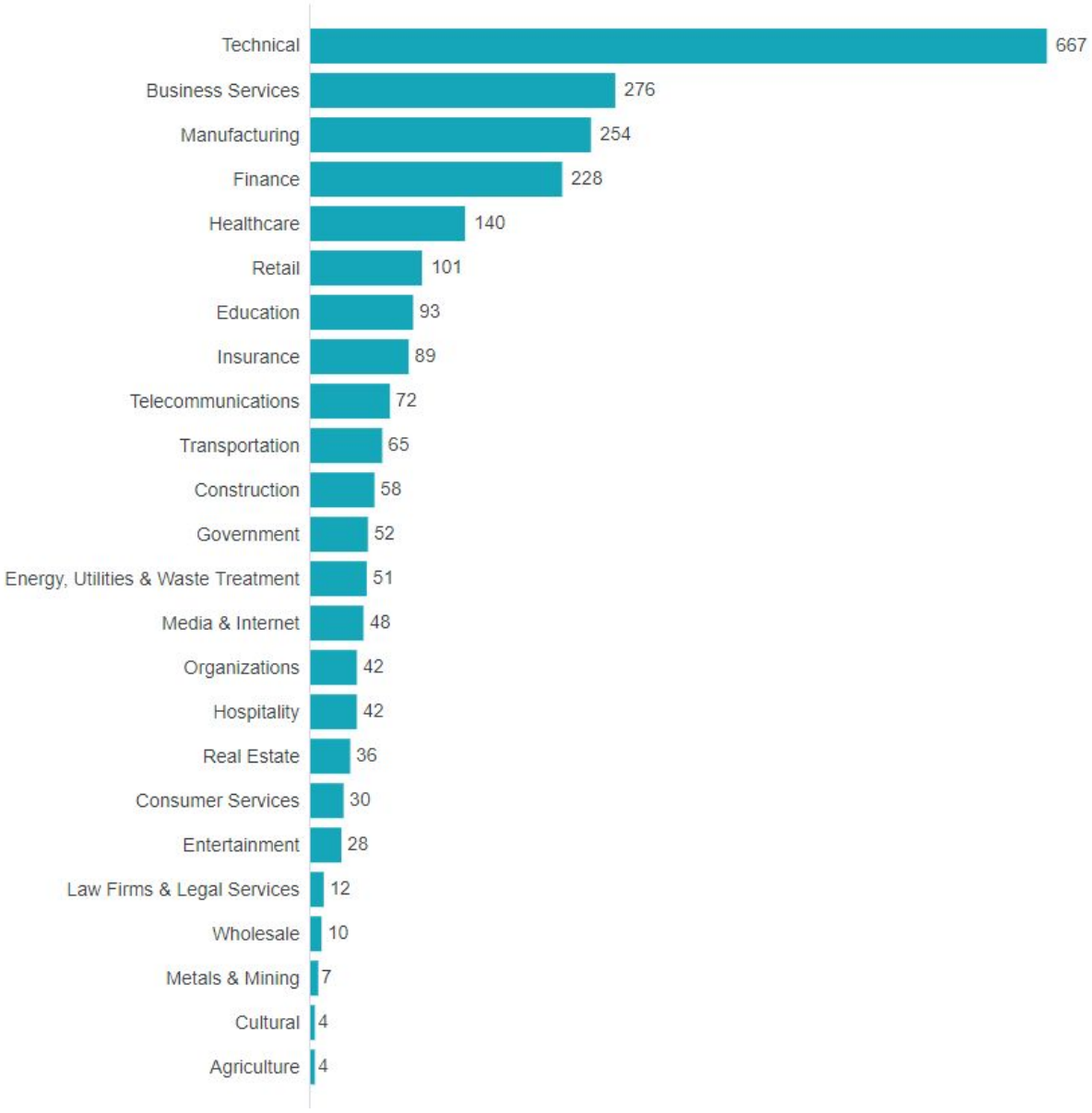
- ➔ *Original Developer:*
  - ◆ Thomas Muller
- ➔ *Supporters/Donors:*
  - ◆ tagtraum industries incorporated, USA
  - ◆ TimeWriter, Netherlands
  - ◆ Cognitect, USA
  - ◆ Code 42 Software, Inc., Minneapolis

- Code Lutin, France
- NetSuxxess GmbH, Germany
- Poker Copilot, Steve McLeod, Germany
- SkyCash, Poland
- Lumber-mill, Inc., Japan
- StockMarketEye, USA
- Eckenfelder GmbH & Co.KG, Germany

➔ *Companies currently using H2 Database:*

- Charles Schwab
- Cisco
- DBS Bank
- Sheetz
- Pepsico
- eviCore healthcare

Firmographics of Companies using H2 Database (Industry-wise):[1]



[1] https://discovery.hgdata.com/product/h2-database

FUNCTIONALITY:

The domain that H2 database falls in is “relational database management system”. Specifically it is an RDBMS system that is written in Java. It can be used in embedded mode(single user) and client server mode(multiple users accessing the database).

FUNCTIONAL ASPECTS

- Supports embedded and client/server mode
- Supports standard SQL - Support for multiple schemas and information schema, Referential integrity / foreign key constraints with cascade, check constraints, Inner and outer joins, subqueries, read only views and inline views, Triggers and Java functions / stored procedures
- Supports JDBC API and PostgreSQL ODBC drivers
- Supports full text search
- Transaction support
- Disk-based or in-memory databases and tables, read-only database support, temporary tables
- Support for users and roles

NON FUNCTIONAL ASPECTS

- Strong security features as it is encrypted database (AES) (SHA-256 password encryption, encryption functions, SSL)
- Small footprint: around 2 MB jar file size
- Well tested and has high code coverage, randomized stress tests
- Contains recovery mechanisms
- Various compatibility modes to support multiple database engines. For instance, it can support older database engines like IBM DB2.

- Web-based Console application (translated to many languages) with autocomplete
- Flexible cache size that can be modified. H2 uses cache that stores most frequent data in RAM.

UNIQUE ASPECTS:

- The most unique feature of H2 database is that it supports both embedded mode and client/server mode. H2 can also in addition operate in mixed mode, in which it can support local and remote connections at the same time.
- It can store data both on Disks and in Memory.

KEY DEVELOPERS:

List of all the key contributors in github:

1. Thomas Muller
2. Evgenij Ryazanov
3. Noel Grandin
4. Andrei Tokar
5. Sergi Vladykin
6. Jacek Ławrynowicz
7. Stéphane Eintrazi
8. Niklas Mehner
9. Philippe Marschall
10. Lukas Eder

LIST OF OPEN ISSUES:

1. https://github.com/h2database/h2database/issues/2458
2. https://github.com/h2database/h2database/issues/2407
3. https://github.com/h2database/h2database/issues/2318
4. https://github.com/h2database/h2database/issues/2360
5. https://github.com/h2database/h2database/issues/2180