

NOSQL AND GRAPH LOVE STORY

RELATIONSHIPS REALLY MATTER



WHOAMI

- *Github*: @purbon
- *Twitter*: @purbon
- Software Architect at Belectric ITS GmbH
- Run the Graph Processing DevRoom within FOSDEM
- Like lots of things, movies, tv series, running, hacking, ...

GRAPH PROCESSING DEVROOM

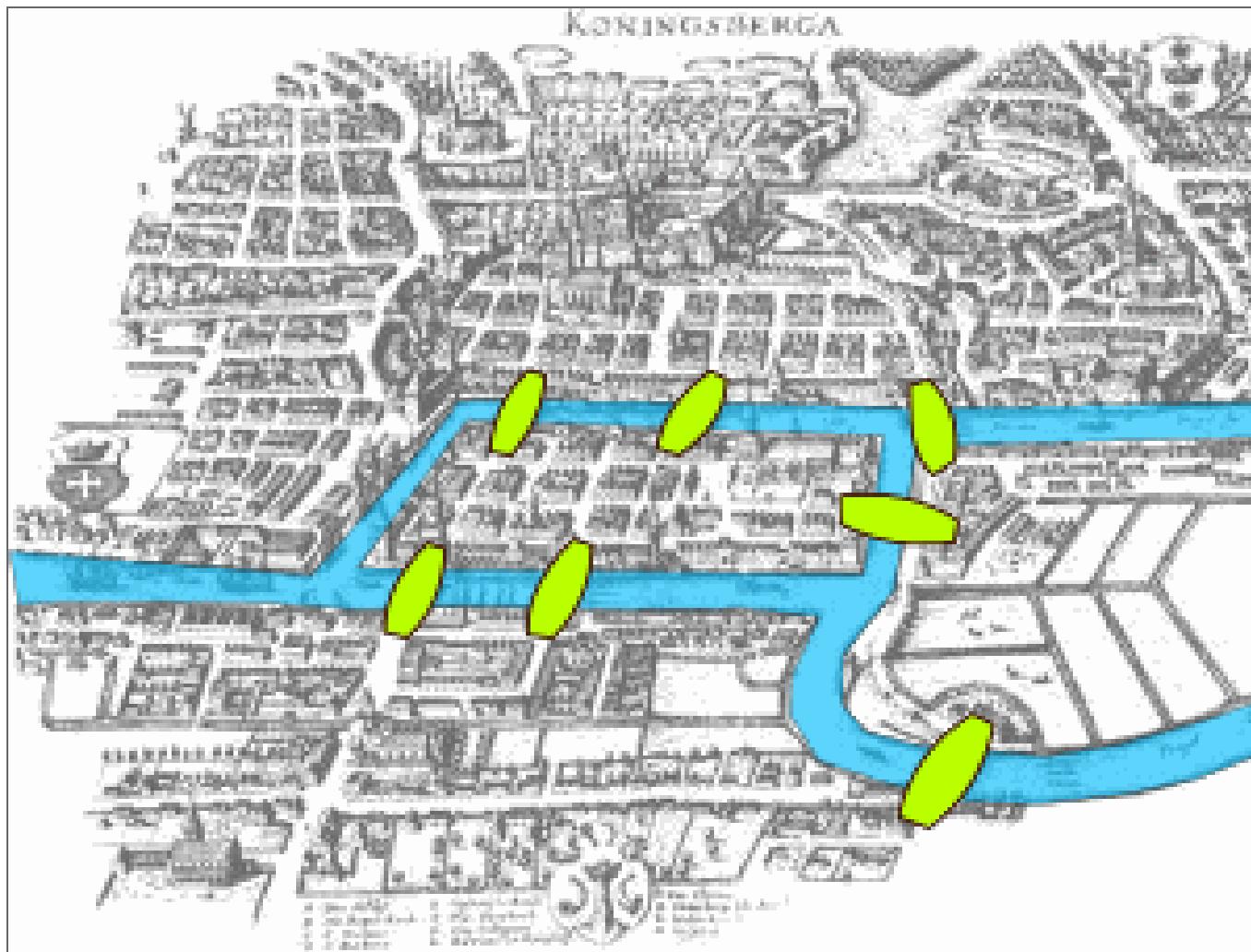
<http://fosdem.graph-database.org> <http://www.fosdem.org>

2-3 Feb 2013, Brussels Belguim

LET'S GO WILD!



THE SEVEN BRIDGES OF KONINGSBERG



IT'S AN SMALL WORLD, AFTER ALL



EVERYTHING IS ABOUT CONNECTIONS

“ I have observed that the selection of food is often influenced by the mood of the person ordering. ”

Star Trek: Lieutenant Commander Data

GRAPH ARE INTUITIVE

“ Developers of dozens of Pregel applications within Google have found that "thinking like a vertex," which is the essence of programming in Pregel, is intuitive. ”

Google Pregel paper

APPLICATIONS

- Chemistry
- Topology
- Electric circuits, **Kirchoff et all**
- Computer Science
- Linguistics
- Biology
- Sociology

GRAPH IN COMPUTER SCIENCE

... Open questions?

1. How many lectures with graph involved?
2. Something more than RDBMS when taking database course?
3. How about the success rate?
4. Who saw application on data?
5. math?
6. others?

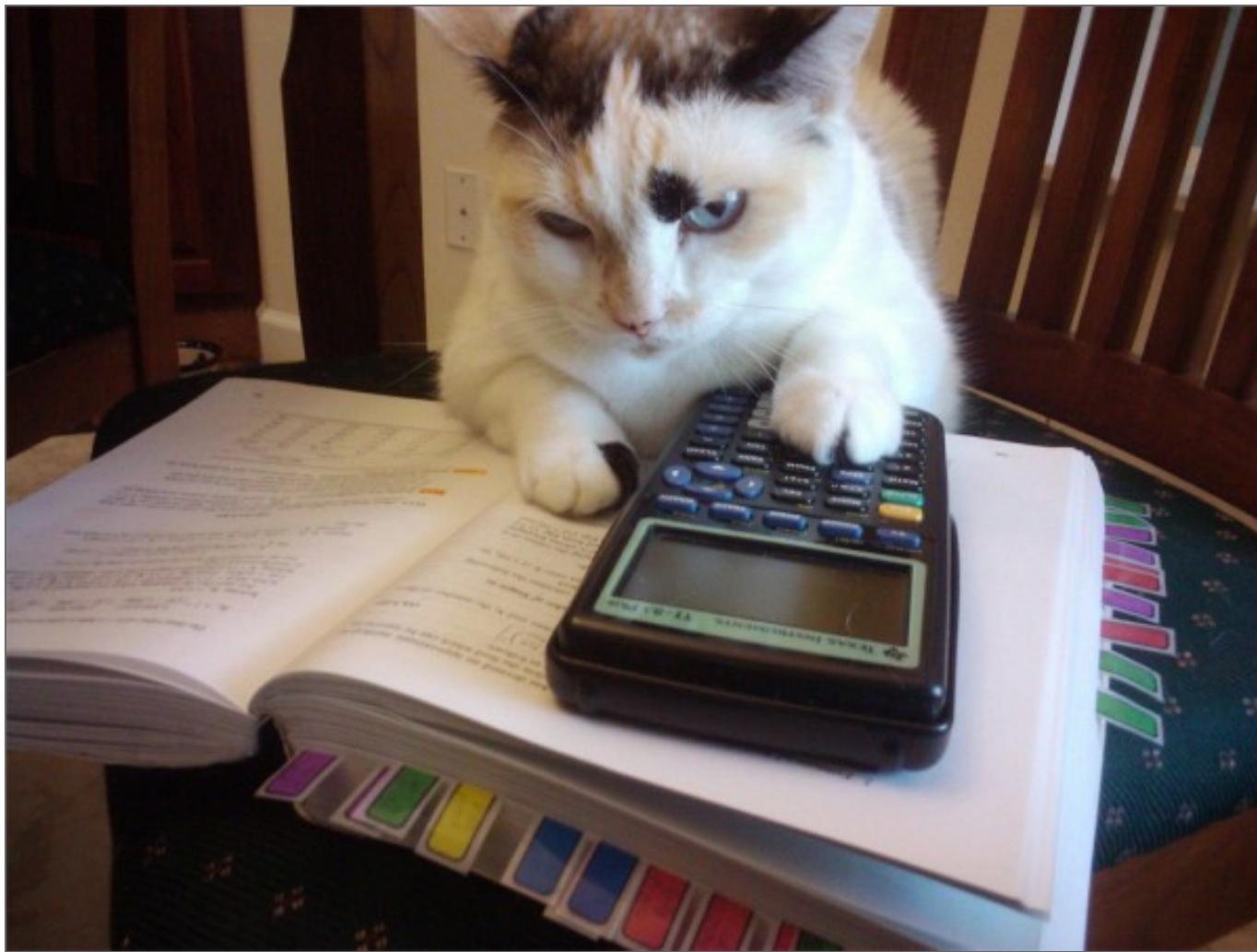
LOW SUCCESS RATE



GRAPH VS THE RED DRAGON



I DID THE MATH, OR NOT!



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GRAPHS AND (DATA)

THE HIERARCHICAL DATA MODEL

- Parent/Child relationships...
- Lead by IBM in their IMF, precursor of the DBMS, mid 1960s...
- Supersede by Codd's Relational model...

THE NETWORK DATA MODEL

1. Charles Bachman in 1969...
2. Lead by Conference on Data Systems Languages and later an ISO spec
3. Relevant Implementations:
 - Digital Equipment Corporation DBMS/VAX..
 - Univac DMS-1100...
4. Not much of success

ANOTHER RELATED MODELS:

- Object databases
- XML databases
- Relational Databases
- ...

But **in 2007** Graph Processing was *born*.

GRAPH PROCESSING

DATABASES AND COMPUTING

MAJORS ON GRAPH

Twitter **Cassovary** - A typical example usage is to do large scale graph mining and analysis of a big network.

Facebook **TAO**, the facebook social graph database

Google **Pregel**, a system for large-scale graph processing.

Microsoft, Oracle and others doing the same

BUT NOT JUST MAJORS

Moviepilot GmbH **Neo4j**, as a recommendation engine powered engine.

Morgen UG **Morgner GmbH**, provide support for graph databases within the CMS world.

BMAT SL **BMAT**, provide music innovation through technology.

But many others like **Game Duell** are looking for Graph knowledge.

Startups in Europe

STATE OF THE ART

JUST BECAUSE YOU CAN...



COMMON SENSE

Just because you can, doesn't mean you should.

YOU CHOOSE...



DATABASES

- **Neo4j**
- **DEX**
- **OrientDB**
- **InfiniteGraph**

And many others...

COMPUTING

- **Titan**
- **Apache Hama**
- **Apache Giraph**
- **Signal/Collect**

And many others...

VISUALIZATION

- **ArborJS**
- **Gephi**
- **yED**
- **SigmaJS**

And many others...

TRENDS

TOWARDS REAL STANDARDS





TOWARDS REAL QUERY LANGUAGES



TOWARDS REAL BENCHMARKING



TOWARDS REAL TIME



LIVE AND ALIVE





BY PERE URBON-BAYES / PURBON.COM

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