
Jens Teubner, DBIS Group
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Winter 2015/16
A Few Words About Me

**Jens Teubner**
DBIS Group (LS 6)
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1996–2001  Diploma in Physics, U Konstanz
2001–2005  Research assistant, DBIS Group, U Konstanz
2005–2007  Research assistant, Database Group, TU München
          Oct 2006  PhD in Computer Science (XML query processing)
2007–2008  Postdoc, IBM T. J. Watson Research Center, NY, USA
2008–2013  Senior Researcher, Systems Group, ETH Zurich
          since 4/2013 Full Professor, DBIS Group, TU Dortmund University

**Topic:** Database systems on modern computing hardware
What this Course is About

**TPC-E Industry Benchmark** (modeling a brokerage firm)
- 2.3M customers; 11.5M accounts; 2B holdings; 40B trades
- 18.5 TB initial database size

Current record: **4,593 tpsE** *(45,930 transactions/sec total)*!

<table>
<thead>
<tr>
<th>Response Time (in seconds)</th>
<th>Minimum</th>
<th>Average</th>
<th>90\textsuperscript{th} Percentile</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Broker-Volume</td>
<td>0.01</td>
<td>0.03</td>
<td>0.06</td>
<td>0.86</td>
</tr>
<tr>
<td>Customer-Position</td>
<td>0.01</td>
<td>0.02</td>
<td>0.04</td>
<td>4.71</td>
</tr>
<tr>
<td>Market-Feed</td>
<td>0.01</td>
<td>0.02</td>
<td>0.04</td>
<td>4.68</td>
</tr>
<tr>
<td>Market-Watch</td>
<td>0.01</td>
<td>0.03</td>
<td>0.06</td>
<td>0.62</td>
</tr>
<tr>
<td>Security-Detail</td>
<td>0.01</td>
<td>0.01</td>
<td>0.02</td>
<td>5.21</td>
</tr>
</tbody>
</table>

How can databases provide such throughput, yet be transaction-safe?
Organizational Matters

Lecture

- Mondays, 14–16h, Room OH 12, E.003
- Thursdays, 10–12h, Room OH 12, E.003
- Course website: http://dbis.cs.tu-dortmund.de/cms/de/lehre/ws1516/arch-dbms

Please visit this website regularly. I will frequently post new information during the semester.

Exercises

- Mondays, 10–12h, Room OH 14, 304
- Mondays, 16–18h, Room OH 14, E02
- TA: Thomas Lindemann (thomas.lindemann@cs.tu-dortmund.de)
- Register via AsSESS by October 23, 2015.
- Participation is not mandatory, but highly recommended.
Exam

There will be a **written exam**.

- dates: February 25, 2016 and April 7, 2015
- duration: 90 minutes
- More information during the semester
I’d like to make this course highly interactive. Please speak up, discuss, ask questions!

The material we discuss is relevant in practice.

We’ll provide practical examples and exercises.

You get most out of this course by actively participating in (and solving) the exercises.


Alfons Kemper and André Eickler. *Datenbanksysteme: Eine Einführung*. Oldenbourg Verlag.

Dennis Shasha and Philippe Bonet. *Database Tuning*. Morgan-Kaufmann.

... or pick your own favourite in the library — most text books about advanced database topics will do.

I’ll also sometimes point to specific research papers and you’re welcome to search for additional background reading. Search engines like Google Scholar are your friend.
You might also be interested in...

...the course **Data Processing on Modern Hardware**
- Summer Semester
- Many similar concepts, geared to exploit the characteristics of modern computing hardware.

...doing your **Master Thesis** with me
- Chance to participate in the forefront of research.
- Many ways to join, approach me if you’re interested.