Seminar
„Energy Efficient Databases“

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Meetings

• Initial Meeting:
  Wednesday, April 13, 16:00 in room 0.01, E1 7

• Regular Meetings:
  Wednesdays, 16:00-17:30, in room 0.01, E1 7 starting May 11

• Exceptions:
  – May 11: 2 talks
  – May 18, June 1: no talk
General Topics

• Overall topic: Finish job \textit{within given time with minimal energy consumption}

• Energy Efficiency in Databases
  – Query Processing (algorithms in DB core)
  – Measuring and Modeling Power Usage
  – Storage
  – Distributed Systems

• Mostly recent scientific publications from the last 4 years (one exception: 1993)
Topics 1 – Query Processing

• Energy Efficient Query Optimization (May 11)
  SIGMOD 1993

• Energy Efficiency of a Database Server (May 11)
  SIGMOD 2010

• Eco-Friendly DBMS (May 25)
  CIDR 2009; IEEE DEBull 2011

• Power-Performance Tradeoffs in DBMS (June 8)
  ICDE 2010
Topics 2 – Power Usage

• Power-Consumption Analysis of TPC-C; JouleSort (June 15)
  VLDB 2008; SIGMOD 2007

• Power Models (June 22)
  HotPower 2008
Topics 3 – Storage

• Flash Disk Use in Databases (June 29)
  BTW 2009; C3S2E 2010

• Energy Proportionality for Disk Storage (July 6)
  EDBT 2011; SOSP 2009
Topics 4 – Distributed Systems

• **Energy-Efficient MapReduce (July 13)**
  UCB TechReports from 2009 and 2010

• **MapReduce Tradeoffs (July 20)**
  UMN TechReport; Green Computing 2009
What we expect you to do - basics

• Attend all talks;
  write a short mail if you cannot participate

• Be on time (talks start 16:00)

• Participate in the discussion after the talks

• Mandatory meeting with tutor
  at least two weeks before your talk
What we expect you to do – talk (1)

- Read your paper(s) and related literature
- Prepare a 30 minutes talk on the topic
  - Prepare slides in English
  - Pick the most interesting, challenging or futuristic contributions from the papers
  - Start with an introduction to the topic, possibly including related papers
  - Discuss any weaknesses or problems in the talk
  - Don’t copy conference slides!
  - Interact with your tutor
What we expect you to do – talk (2)

• Send your slides to your tutor
  **Hard** deadline: Friday before the talk, 4pm
• Give your talk in English
  – If you need a notebook, talk to your tutor
• Answer any questions from the audience
• Prepare a short written report
  – up to 5 pages
  – about strengths, weaknesses, and own ideas
  – until two weeks after the talk
  – together with your opponent
What we expect you to do – opponent

• One preselected student per paper
• Prepares tough questions to challenge the paper (not to challenge the talk or the speaker!)
• Gets the preliminary slides on Friday
• Prepares the final report together with the speaker

Opponent assignments will be done early next week
What we provide

• Tutor helps by
  – answering general questions on the topics
  – providing hints for selecting the topic of the talk
  – providing feedback on the slides
  – providing technical support (notebook etc)

• Feedback meeting after talk
Your final grade is influenced by...

- Your oral presentation, including your slides
- Your knowledge about your topic (answers to questions)
- Your questions as opponent
- Your two written reports
  - as presenter
  - as opponent
- Your overall participation in the seminar
Registration

• Fill in the form with **unique** priorities for topics (1 – like most, 10 – dislike most)
• Assignment available until Friday 1pm (probably earlier)