The Parallel and Distributed Systems Group at TU Delft

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P2P systems  multicore  multicore  grids/clouds  online gaming
P2P systems  P2P systems  e-Science  e-Science  grids/clouds
HPC systems  P2P systems

Home page

• www.pds.ewi.tudelft.nl

Publications

• see PDS publication database at publications.st.ewi.tudelft.nl
Why Cloud Computing?

- Application/Media/Web Hosting
- E-Commerce
- On-Demand Workforce and CRM
- Resources: Computation, Backup and Storage, etc.
- High-Performance Computing
- Search

Source: http://aws.amazon.com/solutions/case-studies/
Course Goals

• Explain basic concepts, objectives, and functions of cloud computing
  • Lectures

• Implement complex applications using cloud computing
  • Lab exercises

• Analyze state-of-the-art in cloud computing
  • Presentations and Reviews
Course Topics

1. Overview of cloud computing
2. Scheduling and resource management
3. Data centers and energy efficiency
4. Multi-tenancy concepts, including virtualization
5. Cloud programming models
6. Case studies
7. Guest lecturer
Course Material

• **NO** Textbook

• Lectures
  • Available on Blackboard or upon request

• Readings
  • 5 topics, 3 papers per topic
  • Available on Blackboard or upon request
  • Students choose a topic, subject to availability

• Lab exercises
  • Small exercises for practice, One large exercise for evaluation
  • Available on Blackboard or upon request
IN4392 Schedule

• Lectures

• Lab exercises
  • Individual or Groups of 2

• Reviews
  • Individual

• Presentations
  • Groups of 2
  • In topic of choice

• **NO** Exam
# Important Dates

1. **Friday, Sep 14**  
   (End of Week 1.2)  
   - Pick topic for presentation

2. **Friday, Sep 21**  
   (End of Week 1.3)  
   - First review deadline, individual  
   - Team formation for presentation and large lab exercise

3. **Friday, Oct 5**  
   (End of Week 1.5)  
   - Second review deadline, individual

4. **Friday, Oct 19**  
   (End of Week 1.7)  
   - Third review deadline, individual

5. **Friday, Nov 2**  
   (End of Week 1.9)  
   - Large Lab exercise, team
Recommended Time Allocation

- Lectures
  - 2 hours per week in-class, Wednesday, 15:45-17:30 (College Rooster)

- Small exercises (optional)
  - ≤10 hours, including self-study and experimental work

- Large exercise (2 persons)
  - ≤50 hours/person, including experiments and report writing

- Reviews
  - ≤40 hours, including self-study and review writing

- Presentations (2 persons)
  - 2 hours per week in-class, Tuesday, 15:45-17:30
  - ≤10 hours/person, for team-study and preparation
### IN4392: The Grading System

***(You can build your own path)***

<table>
<thead>
<tr>
<th>Course Points</th>
<th>Access Tokens</th>
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<tbody>
<tr>
<td><strong>10,000 for straight 10</strong></td>
<td>Discuss w Lecturer about MSc topics</td>
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<tr>
<td>4,000 for <strong>large exercise</strong></td>
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<td>3,500 for <strong>reviews</strong></td>
<td>Recommendation Letter</td>
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<td>2,500 for <strong>presentations</strong></td>
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<td>(\leq 1,000) for improvements</td>
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<td>+50 activity in Lab/Lecture/Presentation</td>
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<td>+25/Q end-lecture quiz</td>
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<td>+500 entry quiz</td>
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Large Lab Exercise

Implement complex applications using cloud computing

• First deadline: Nov 2, 2012 (see ‘Important Dates’ slide)

• Groups of 2
  • Self-selection or matchmaking by teacher

• Create a cloud-based application
  • Design
  • Implementation
  • Verification/Testing

• Create a report about the application (4-6 pages)
  • Explain design
  • Analysis of system performance
  • Technical writing: quality, structure, presentation, graphing, etc.
Presentations

*Analyze state-of-the-art in cloud computing*

- Groups of 2
  - Same group as for Large Lab exercise, unless good reason
  - Self-selection or matchmaking by teacher

- Topic of interest
  - Self-selection during first week, subject to availability
  - Matchmaking by teacher, to lead-balance topics

- Use TU Delft presentation style for slides
  - [https://intranet.tudelft.nl/live/pagina.jsp?id=be0f06fc-2026-46a5-8ae6-4155f4737f9b&lang=en](https://intranet.tudelft.nl/live/pagina.jsp?id=be0f06fc-2026-46a5-8ae6-4155f4737f9b&lang=en)

- **All** students must be present, unless good reason

- Presentation evaluation form: teacher and peer review
Reviews

Analyze state-of-the-art in cloud computing

• First deadline: Sep 21, 2012 (see ‘Important Dates’ slide)

• Select topic, subject to availability

• Individually, write 7 article reviews
  • All 3 articles recommended for your topic
  • 1 article from each of the other 4 topics

• Use review process of conferences and journals
  • Paper review guidelines available on Blackboard and upon request
    https://blackboard.tudelft.nl/bbcswebdav/xid-5977411_2
Thank you!
Suggestions? Questions?

- Contact teachers
  - Dick Epema
  - Alexandru Iosup

- Contact TA
  - Bogdan Ghit

Do not hesitate to contact me…