581372-6
Performance Evaluation

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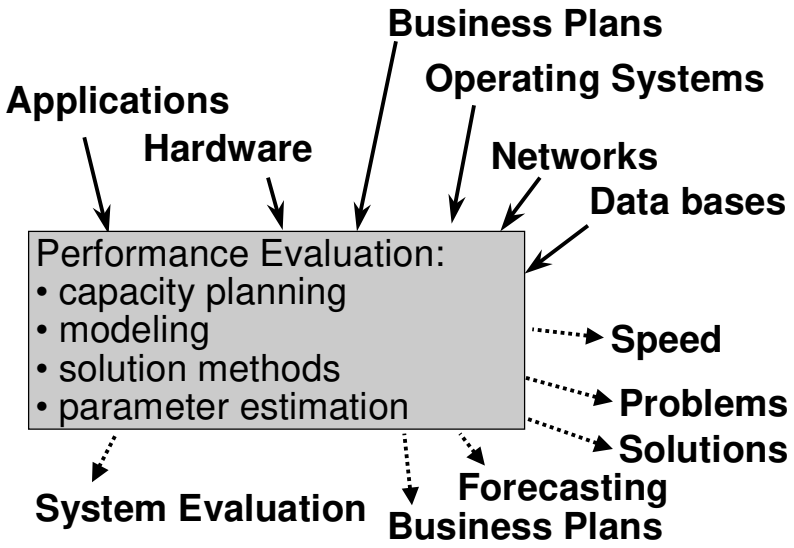
Topics



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Goals

- What is the overall process of systems performance evaluation?
- How are performance evaluation models developed, solved, and used?
- How are parameter values determined?
- What specific analytical solution methods are there and how do they work?
- What are the limits of analytical solution methods, I.e., when is simulation needed?

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How is performance evaluation used?

- How good is current system?
- Why is my system so slow?
- What would happen if some component would be changed to a twice as fast component?
- How long will current system be ”fast enough”?
- How many transactions (per second) can current system handle?
- Do we need complete system upgrade, or just larger message buffers?

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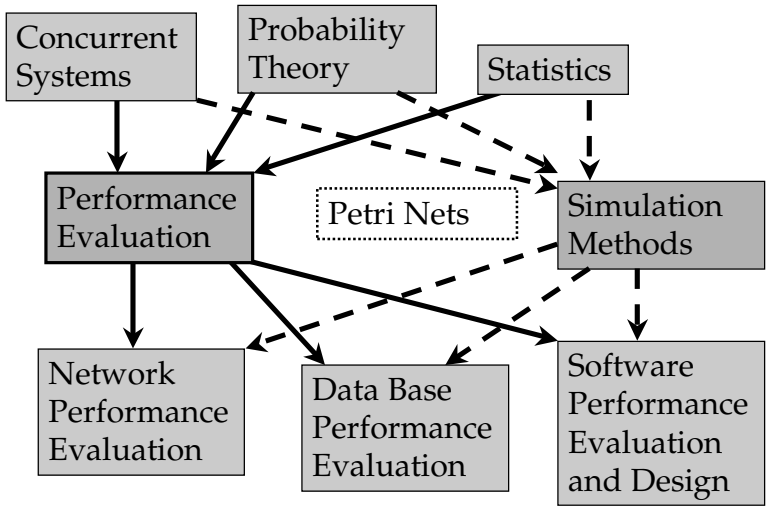
Course Map



Notice

- These slides are made to support lectures and to be used with the text book
- They are NOT covering everything that is covered in the lectures
- They are NOT a replacement for a text book
- If you need a self-contained presentation, please use a text book

Motto:

It is not good exercise,
if you do not sweat

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WWW Information

- Course home page
  http://www.cs.helsinki.fi/~kerola/ska/
- This semester schedule
  .../ska/K02/aikataulu.html
- Lectures *.../ska/K02/luennot/*
- Homeworks *.../ska/K02/laskuharj/*
- Old exams *.../ska/kokeet/*
- Newsgroup *hy.opiskelu.tktl.ska*

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Contents

1. Intro, Probability Theory and Statistics
2. Performance and Capacity Planning
3. Methods for Capacity Planning
4. Models for Performance Evaluation
5. Solutions to Simple Models
6. Operational Analysis
7. Effective and Usable Solution Methods
8. MVA, Solution Packages
9. Multiclass Models
10. Open Models
11. Practical Examples
12. Parameter Estimation, Summary

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Course Material

- E.D. Lazowska, J. Zahorjan, G.S. Graham, and K.C. Sevcik, Quantitative System Performance, Prentice-Hall, 1984.
  - general text book
- A.M. Law, W.D. Kelton, Simulation, Modeling and Analysis, McGraw-Hill, 1991
  - statistics, prob. theory
- J. Brumfield, PMVA Purdue Mean Value Analysis Program User's Guide, Dept of CS, Purdue University
  - software to solve closed queuing network models
- Lecture notes
- Homework problems

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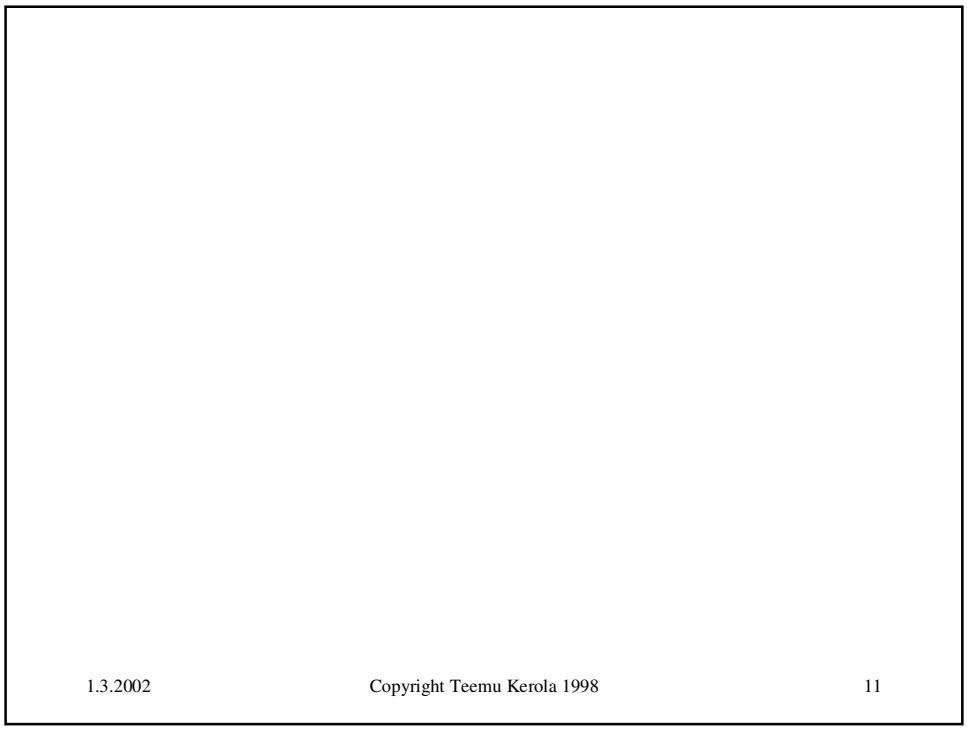
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