581372-6 Performance Evaluation



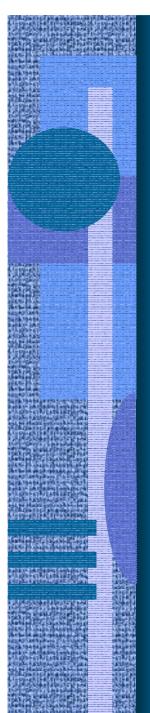
Spring 2002

Topics **Business Plans Operating Systems Applications Hardware Networks** Data bases Performance Evaluation: capacity planning modeling ·····**≻** Speed solution methods **Problems** parameter estimation Solutions **Forecasting System Evaluation Business Plans**



Goals

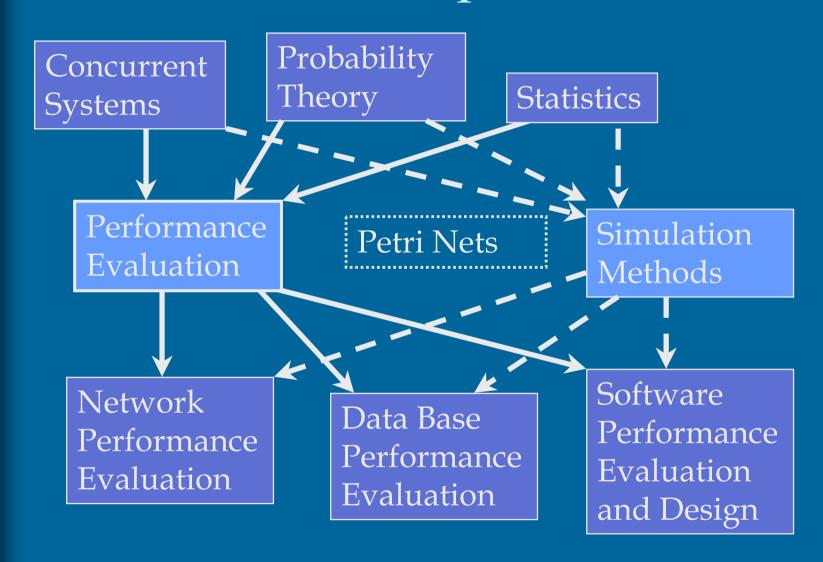
- What is the overall process of systems performance evaluation?
- How are performance evaluation models developed, solved, and used?
- How are parameter values determined?
- What specific analytical solution methods are there and how do they work?
- What are the limits of analytical solution methods,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



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?

Course Map





- 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



WWW Information

• Course home page http://www.cs.helsinki.fi/~kerola/ska/

• This semester schedule

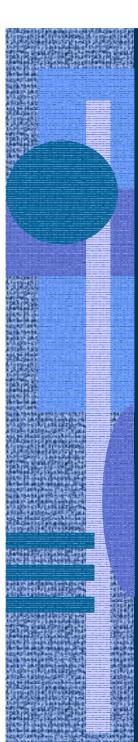
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• Lectures .../ska/K02/luennot/

• Homeworks .../ska/K02/laskuharj/

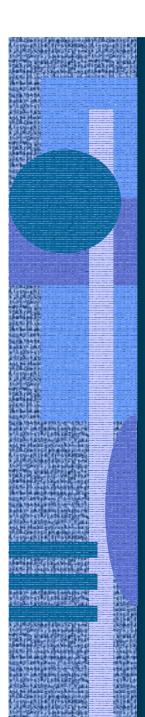
• Old exams .../ska/kokeet/

• Newsgroup hy.opiskelu.tktl.ska



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



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

