Panel
ICSE 2008 SEAMS

Software Engineering for Self-Adaptive Systems: A Research Road Map

Moderators
- Rogério de Lemos (University of Kent, UK)
- Holger Giese (HPI at Universität Potsdam, Germany)

Panellists
- Nelly Bencomo (Lancaster University, UK)
- Bojan Cukic (West Virginia University, USA)
- Hausi Müller (University of Victoria, Canada)
- Danny Weyns (Katholieke Universiteit Leuven, Belgium)
The Road Map Paper

- Objective of the panel
  - present, discuss and receive feedback for road map paper
    - its current version is a draft
    - the discussions may influence the final draft

- The road map paper is a result
    - http://www.dagstuhl.de/en/program/calendar/semhp/?semnr=2008031
      - list of participants
      - abstracts, papers, etc.
      - slides of presentations
      - 5Ws of self-adaptability
The Road Map Paper

- For the *systematic* software engineering of self-adaptive systems, the *objective* of the road map paper:
  - establish a road map for research
  - identify the main research challenges

- The exercise had no intentions of being exhaustive:
  - focus on four views that were identified to be essential from the software engineering perspective:
    - requirements, modelling, engineering and assurances
Several issues were not covered, e.g.

- processes
- technologies
  - model driven development, aspect-oriented programming, and software product lines

We have learned from this exercise is that the area is

- vast, multidisciplinary, and involves a wide range of system
- finding a generic solution that fits all purposes is remote
  - exemplars to benchmark different techniques, methods and tools
Theses of the Four Views of Self-Adaptability

- Requirements
  - “the need to define a new requirements language for handling uncertainty"

- Modelling
  - “the need to enumerate and classify modelling dimensions for obtaining precise models"

- Engineering
  - “the need to consider feedback control loops as first-class entities"

- Assurances
  - “the need to define novel verification and validation methods for the provision of assurances"
Panelists

- Nelly Bencomo (Lancaster University, UK)
  - requirements
- Danny Weyns (Katholieke Universiteit Leuven, Belgium)
  - modelling
- Hausi Müller (University of Victoria, Canada)
  - engineering
- Bojan Cukic (West Virginia University, USA)
  - assurances