Information Society Technologies

ARTIST2 – Year 1 Review

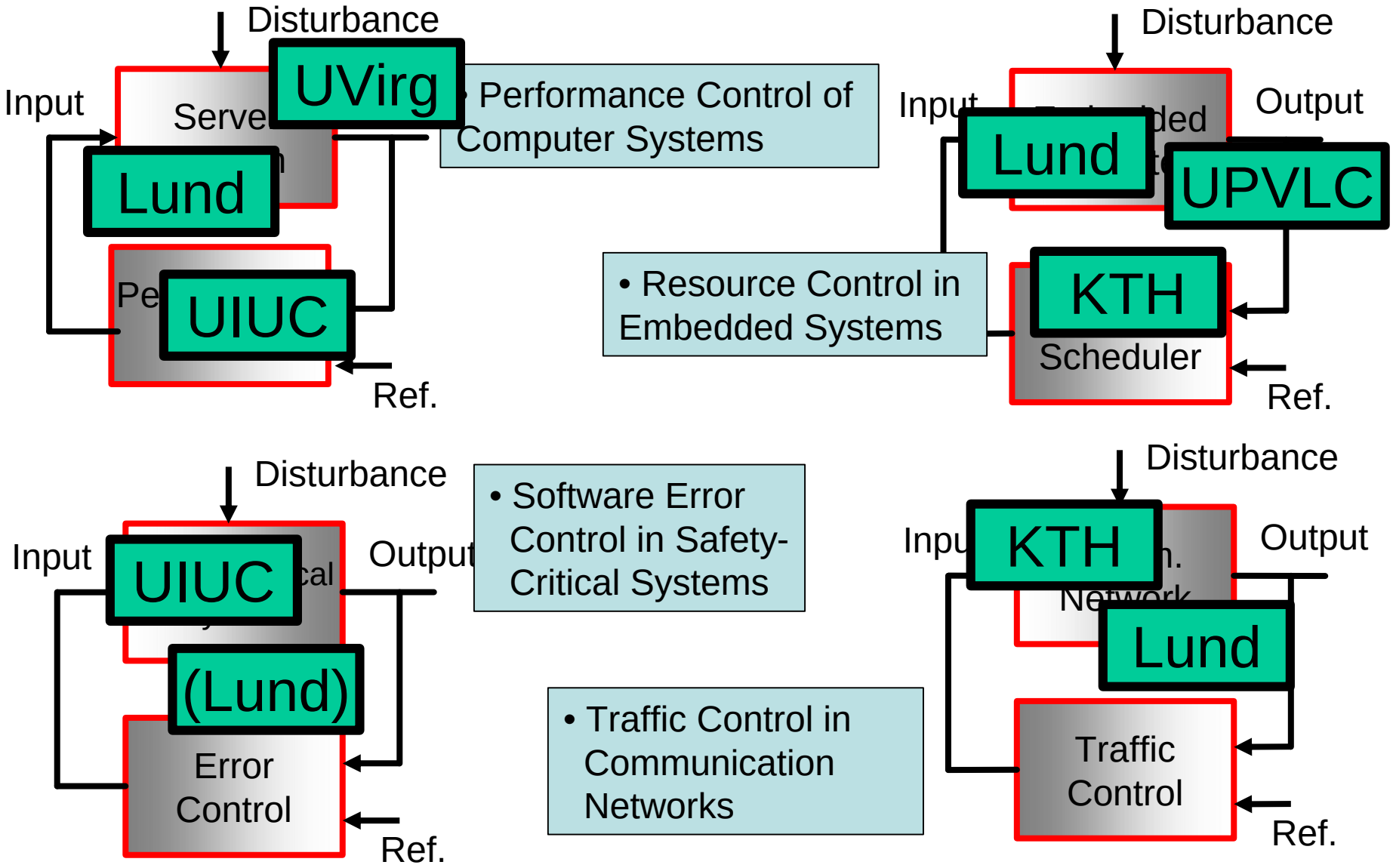
Grenoble, October 3rd-4th, 2005

Activity

Control in Real-Time Computing

Activity leader : Karl-Erik Årzén (LUND)

Control for Computing



Industrial Practice

Few industrial applications, but large interest

Examples:

- Performance Control of Computer Systems
  - *Amazon*
  - *IBM - Autonomic computing initiative*
- Control-based/adaptive resource management
  - *Multimedia market, e.g., Philips*
- Error control of software
  - *US military applications*

Strong potential in a wide industrial sector

Year 1 activities

Achievements

- Roadmap on Control of Real-Time Computing Systems
  - 49 pages
    1. **Executive Overview on Control of Real-Time Computing Systems**
    2. **Current Industrial Practice and Needs**
    3. **Control of Servers**
    4. **Control of CPU Resources**
    5. **Feedback Scheduling of Control Systems**
    6. **Control Middleware**
    7. **Control of Communication Networks**
    8. **Error Control of Software**
  - Research Directions
- Lund Workshop on Control for Embedded Systems
  - Performance Control, Error Control, Control of Networks
  - Strategic research agenda
- Progress in research
  - e.g., modeling and control of computer software systems
- US affiliates have a strong role (Lui Sha and Tarek Abdelzaher)

Year 1 activities

Interaction & Building Excellence

- Interaction between partners
  - the roadmap
  - Lund Workshop
- Building Excellence
  - the roadmap
  - the Lund Workshop
  - excellence spreading activities

    Valencia Graduate Course on Embedded Control

    RTC2005 – one day workshop at ECRTS 2005
  - Årzén and Robertsson from LUND invited as the only non-US participants to an NSF workshop on the future of control of computer systems at IBM in May

    Industrials: IBM, Microsoft, HP, Amazon

Year 1 activities

Management Perspectives

- The work has been focused on the roadmap
  - very important
  - but time-consuming
- The activity is quite wide in scope
  - a challenge to keep it focused
- The US partners have an important role
- No particular problems have been encountered
- The roadmap a good basis for future work

18 Month Perspective

Work Planned for the next 18 months

- Extract milestones from roadmap
  - milestones
  - interactions with other clusters
  - requirements from other clusters
- Disseminate the roadmap
  - condense to journal survey article
- Workshop on Dynamics and Models of Computer Software Systems
  - probably late spring/summer 2006
  - follow-up to the Lund Workshop
- Joint research activities