Context – Decisions and Collaboration

Cognitive Radio and Cognitive Networks Panel

Klaus Moessner

CCSR, University of Surrey

Guildford, United Kingdom

www.surrey.ac.uk

Context – Decisions - Collaboration

- **Context**
- **CR/CN allocation decisions**
- **Collaboration and cohabitation**

www.surrey.ac.uk

Context

Information types

- environmental (radio) information → sensing
- equipment
- profiles
- network related information
- load history
- load prediction

Context inference

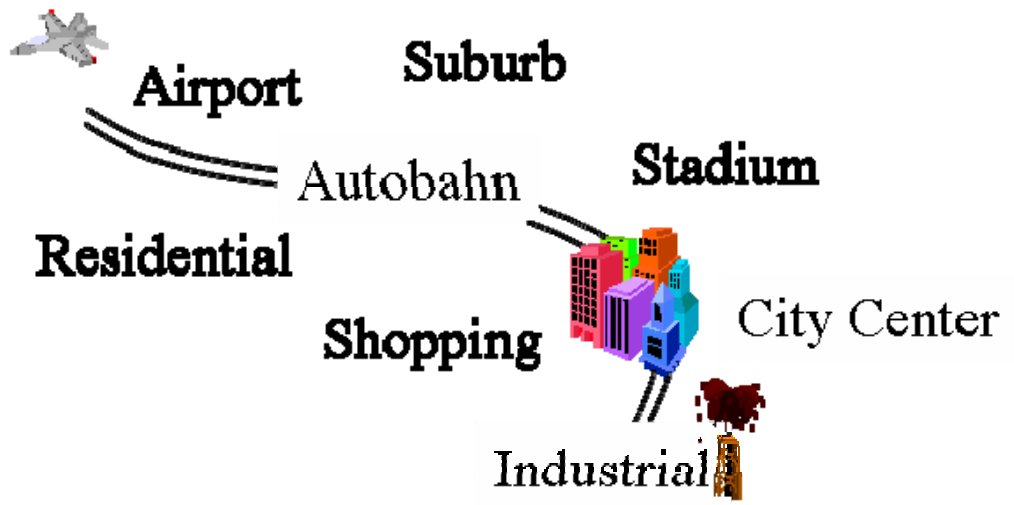
- filtering (filter policies may apply)

  weighing (weight distribution may apply)

  formulation/description

Context .. and no end

Detect User Communications Context



Where? When?
Compared to Observed Patterns?
Topics of Conversation? => Natural Language Processing
Adapts to the User => Machine Learning

… and Arrange Appropriate Wireless Access

J. Mitola, Cognitive Radio, KTH Licentiate Thesis, Sep 99

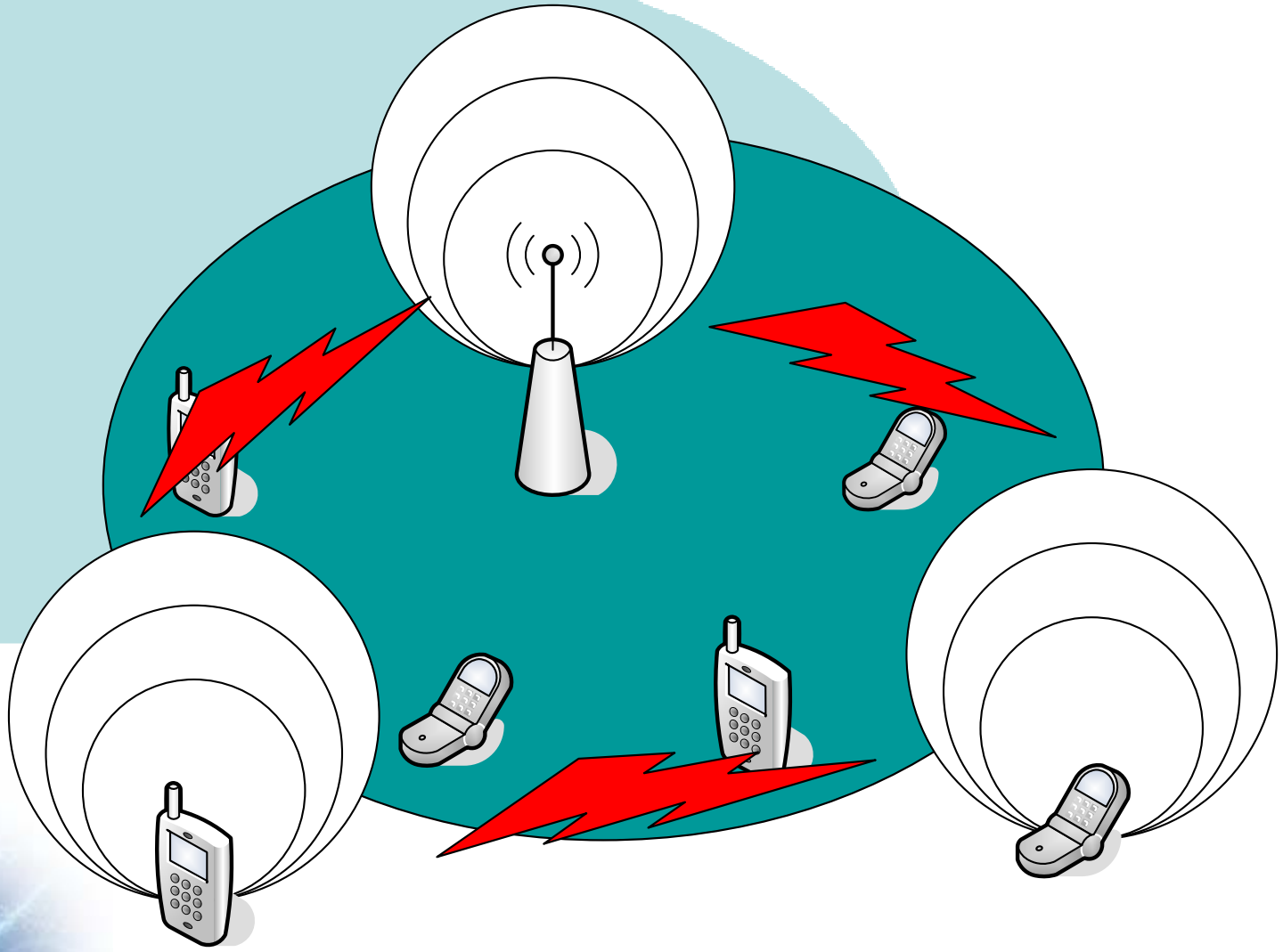
Decision Making

- **Terminal**
  - Local optimisation – opportunistic access

    → local optima
- **Local / shared**
  - Cell wide optimisation – rapid network deployment

    → optima
- **Centralised**
  - Inter system optimisation – resource optimisation within certain bands/areas

Collaboration



So what?

- **Polite protocols ?**
  - What about QoS?
- **Peer to peer negotiations ?**
  - Signalling overhead!
- **Centralised coordination ?**
  - Would make the operators happy.

Contact

Klaus Moessner

Centre for Communication Systems Research
The University of Surrey
Guildford, Surrey
UK - GU2 7XH

eMail: k.moessner@surrey.ac.uk
www : http://www.ee.surrey.ac.uk/showstaff?K.Moessner
Tel: +44 (0)1483 683468
Fax: +44 (0)1483 686011

www.surrey.ac.uk