Workshop “Infrastructure for Smart Devices”
- Making Ubiquity an Actuality -
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Tim Kindberg
(HP Labs
Palo Alto)

Friedemann Mattern
(ETH Zurich)

Joachim Posegga
(SAP Karlsruhe)

“A Dancing Toaster” (Rich Gold, XEROX PARC)
General Remarks

• ~ 50 participants
• ~ 20 abstracts / position statements received
  – all in the handouts
  – 9 have been selected for presentation
• Schedule
  – 3 blocks with 3 presentations (12 min. each)
  – discussions after each block
  – panel discussion on security and privacy
Presentations

- Fritz Hohl: Why We Need a Common Platform for Digital Worlds
- Marc Langheinrich: The 5th Dimension - Building Blocks for Smart Infrastructures
- Johan Plomp, Petteri Alahuhta: A Platform for Ubiquitous Context-Sensitive Applications
- Jim Youll, Raffi Krikorian: Wherehoo Server - An interactive location service for software agents and intelligent systems
- Simon Schubiger-Banz, Sergio Maffioletti, Beat Hirsbrunner, Amine Tafad-Bouzid: Providing Service in a Changing Ubiquitous Computing Environment
- Alexander Leonhardt, Martin Bauer: The VIT-System - Experiences with Developing a Location-Aware System for the Internet
- Keith Cheverst, Christos Efstratiou, Nigel Davies and Adrian Friday: Architectural Ideas for the Support of Adaptive Context-Aware Applications
- Sigrid Steinholt Bygdås, Pål S. Malm, Tore Urnes: A Simple Architecture for Delivering Context Information to Mobile Users
- Brad Johanson, Emre Kiciman, Armando Fox: Moving Data and Interfaces in an Interactive Workspace
Motivation

- **Hardware** for Ubicomp exists
  - handheld devices, wireless networks…
  - more to expect in the near future
- **Software**
  - application specific, ad-hoc
- **General concepts / infrastructure**
  - missing or rudimentary (e.g., Jini, UPnP,…)

Friedemann Mattern, ETH Zurich

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Do We Need Infrastructures?

• See position statement by R. Kehr & A. Zeidler

• “Infrastructure-less” mobile phone systems?
  • no specific hardware, central management,…

• Consider infrastructures in the real life
  – examples: electricity, roads,…
  – just there or even invisible
  – “open platform”
  – makes life easy
    • e.g., deployment of new services
Infrastructure in IT?

• Traditional infrastructure in IT
  – operating systems: environment, services,…
  – middleware (CORBA, Jini,…): common services, protocols for cooperation,…

• Internet infrastructure (→ open platform!)
  – DNS
  – cooperating routers, time servers,…
  – IP, TCP,…: common formats / protocols
  – Web standards (platform for other applications)
Infrastructure for UbiComp?

- Enable cooperation
- Guarantee security, privacy, availability, reliability
- Provide services
  - directory, location, context, event delivery, registry, brokering,…
- Facilitate spontaneous networking, service creation, mobility,…
- …
Common and Open Infrastructure?

• Necessary: simple; incorporate legacy infrastructures (Internet,…), scalable

• Interesting questions, e.g. concerning registries
  – **who owns** the mapping from IDs (e.g., product codes) to data (e.g., a product homepage)?
    • already disputed: are phone directories copyrighted?
  – **big business** (therefore keeping it proprietary?)
    • linking barcodes on ads to the “right” web site
    • customer profiles when “clicking” real-world objects
Infrastructure for UbiComp