

# Personalized Ubiquitous Computing

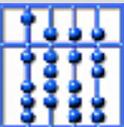
with Handhelds in an Ad-Hoc Service  
Environment

Systementwicklungsprojekt

Franz Strasser

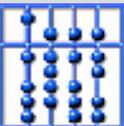
strassef@in.tum.de

Sep 8, 2003



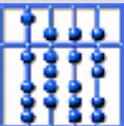
# Summary

- 2<sup>nd</sup> part of 1-years SEP in project ARCHIE
- DWARF services connect dynamically
  - But not always as the user wants them to
- Solution: User can control “his” application
  - Configuration of services via *preferences*
  - Manually by entering his decisions
- Results:
  - Generic DWARF component for service selection (Selector service)
  - ListMenuDisplay service
  - Start-up ARCHIE using the Compaq iPaq



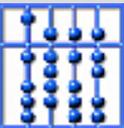
# Outline

- Motivation
- Goals
- Approach
  - Personalized context-aware applications
  - Modeling the user in DWARF
  - Configuration of applications
  - Selection of services
  - Service chains
  - Security
- Results
- Future Work



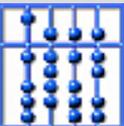
# Motivation

- Every user has its own personal handheld
- Handhelds: new ways of interaction with large software systems
  - Tracking device itself (see SHEEP, 1<sup>st</sup> part of SEP)
  - Selection of services (ARCHIE)



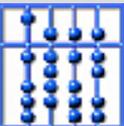
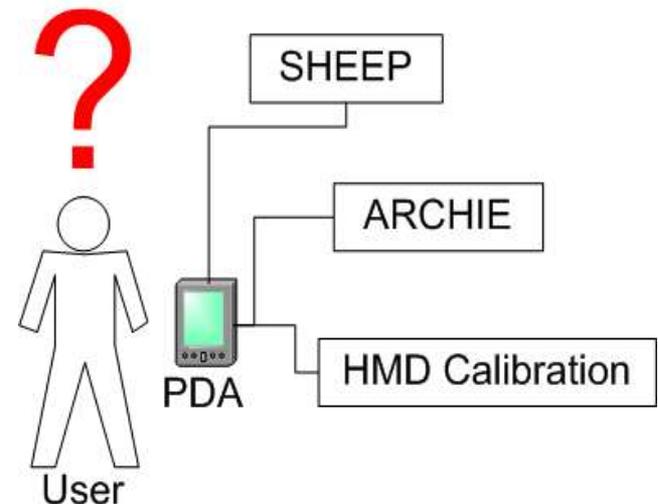
# Goals

- Making DWARF user-aware
  - User should choose services himself
  - Configure services with preferences
  - Secure DWARF application
- Using Compaq iPaq
- Integration into ARCHIE



# Approach

- Influence the selection of services with PDA
    - User has PDA with personal configuration information (*preferences*)
      - Service Manager can form chains of interdependent services itself
    - But: sometimes user-specific information is required:
      - Which application?
      - Which I/O devices?
- => User should choose !

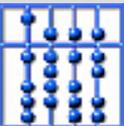


# Personalized context-aware application

- Model user dependencies as part of context
  - Time, location already done
- Merging of system configuration and user preferences sets up the application
  - System has its own configuration
    - Available hardware and HW configuration
    - Default settings
  - When manual input is needed, the system presents choices to user who decides

Services + Context = Context-aware application

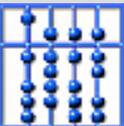
**Preferences +** Services + Context = Personalized context-aware application



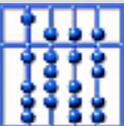
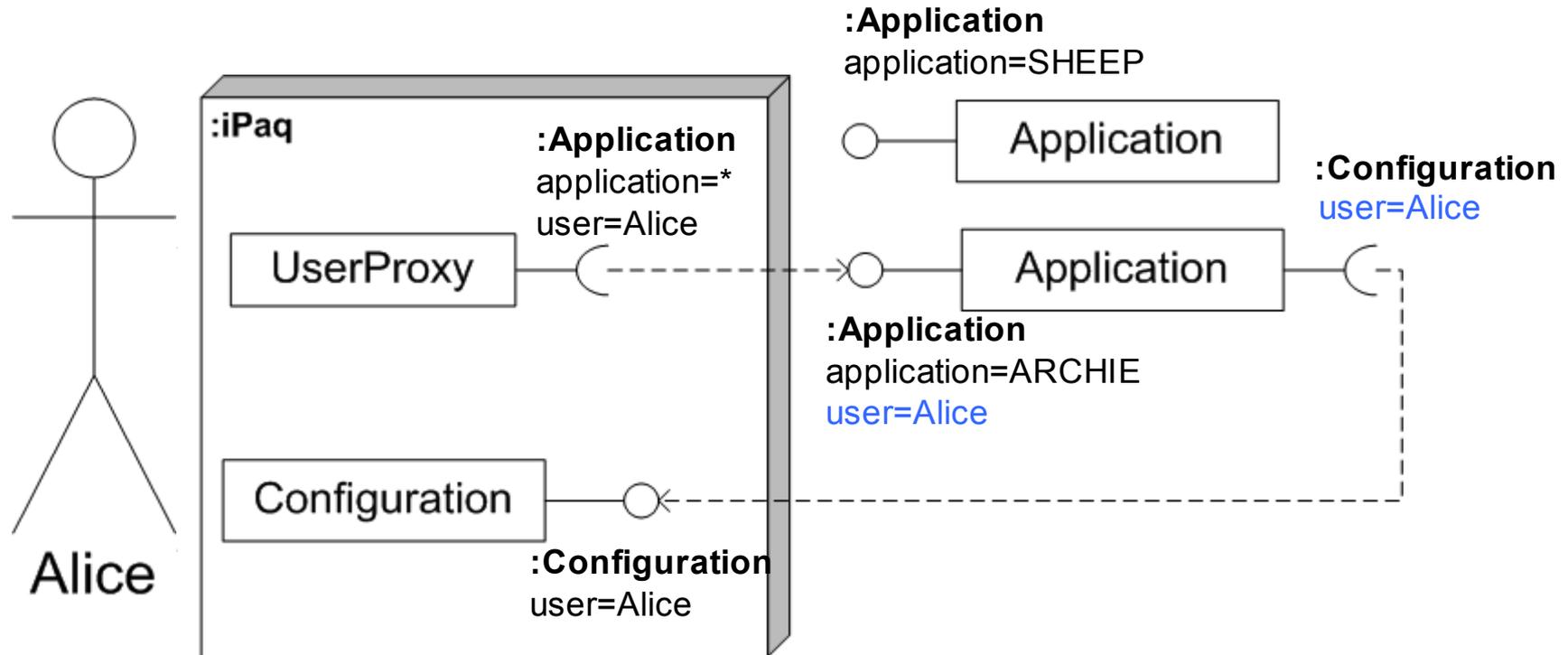
# Modeling the user in DWARF

- What does the user want?
  - He wants to use an application
  - He has a “need” for an application

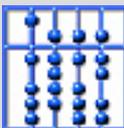
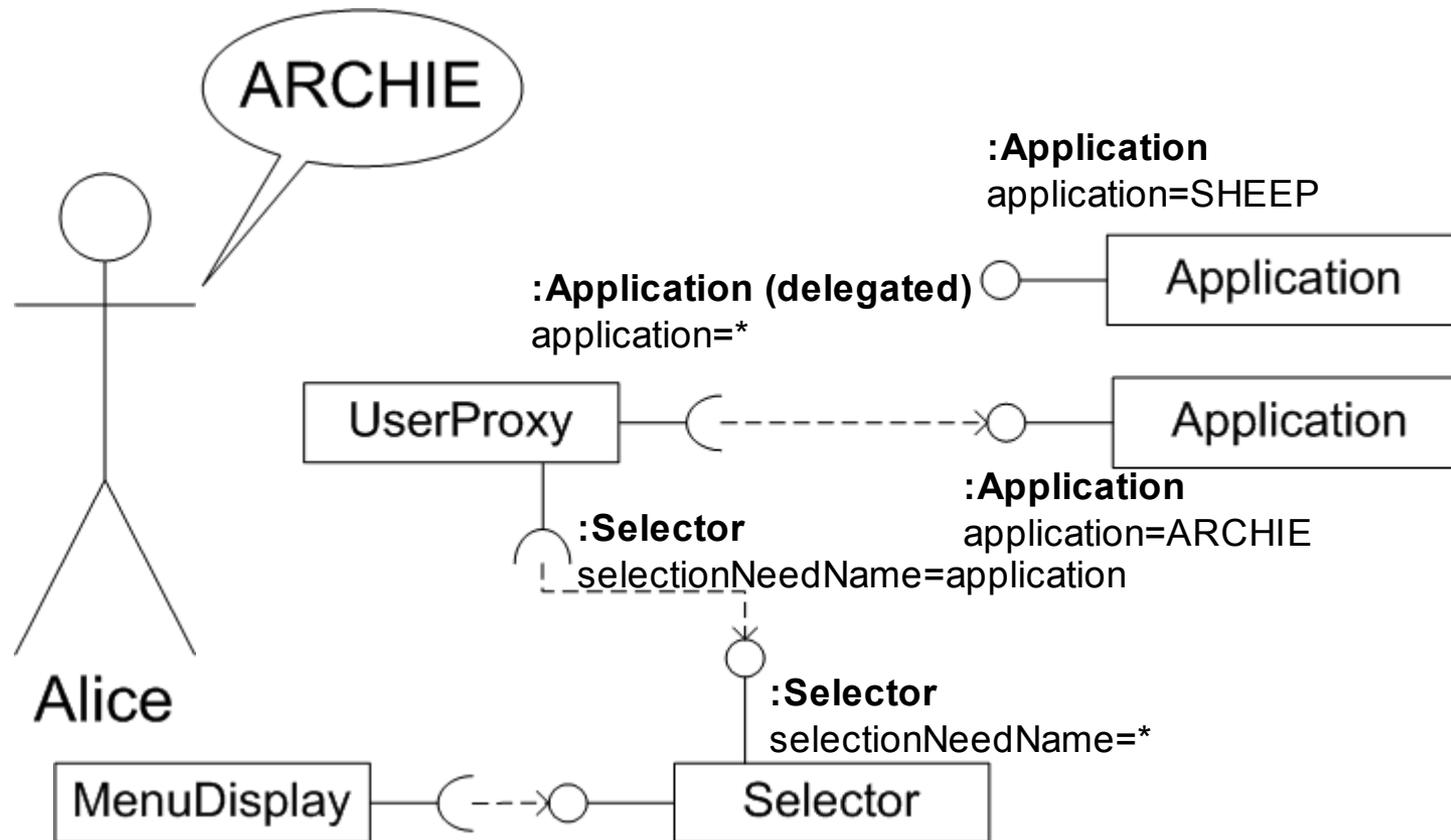
=> User is service with a need for any applications:



# Configuration of applications

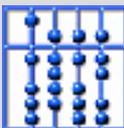
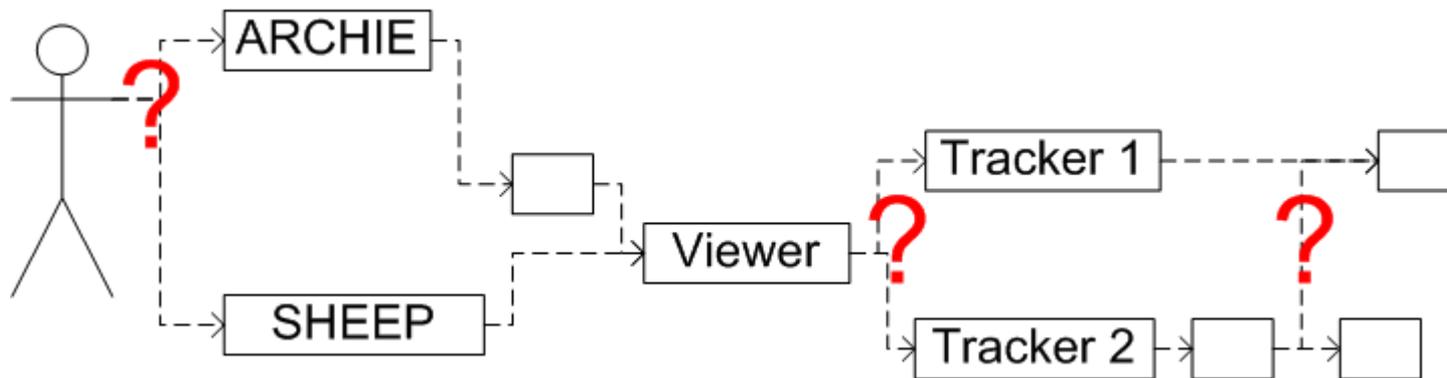


# Selection of services



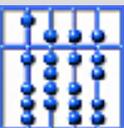
# Service chains

- Ambiguities are everywhere
  - Not only application
- Selector is generic
  - Can be used on every point on the chain
  - Not only on iPaq, but works also with Intersense



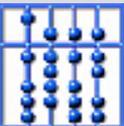
# Security

- Original topic of my SEP
- Problem: Solve personalisation first
- Now: Security model on top of personalisation should be possible
  - Analog to configuration: introduce security tokens



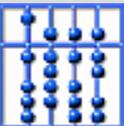
# Results

- New DWARF services
  - Selector
  - ListMenuDisplay
  - UserProxy
- Integrated into ARCHIE
- Running on Compaq iPaq
  - Middleware supports XMLs now



# Future Work

- Security model for DWARF on top of personalisation
- Nicer GUI: selecting an item from a list
  - Better: Wizard (but usability not core requirement)
- Improving performance on iPaq
  - Using another GUI toolkit (QtEmbedded ?)
  - More memory ?



# The last slide

- Thanks to  
ARCHIE team, DWARF staff  
Asa
- Thank you for your attention
- Questions ?

