Delivery of SmartRoom Services Using Mobile Clients

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SmartRoom system

- Many services (composition, personalization)
  - informational, control, collaborative work, ...
- Participation of many users
  - Many (mobile) clients running and accessing services
- Users come with own devices
  - Many mobile platforms, IoT-like device diversity
Multi-Service Property: Client

Service delivery: access interface on personal device

- Conference services
  - Agenda
  - Presentation
  - Management

- World information services
  - Citation index
  - Weather forecast
  - Points of interest around

- Lecture services
  - Presentation
  - Video lecture
  - Test assignments

- Meeting services
  - Ad-hoc agenda
  - Focus on spectator
  - Minute notes

- Discussion services
  - Blogging
  - Feedback
  - Brain storm

- Sensor services
  - Temperature
  - Light/illumination
  - Noise
  - User presence

- Activity tracking services
  - Event recording
  - User activity
  - Summary report
Two types of services (from client perspective)

- **Off-the-shelf service**
  - thick client: local processing
  - UI is customized
  - platform-aware implementation
  - low runtime flexibility

- **Ad-hoc service**
  - runtime construction
  - thin client: delegated processing
  - lightweight UI
  - flexibility for personalization
Two type of services

Service Ontology

- **Service type**: for clients
- **Service description** and Person **interests**: semantic matching for personalization
- **useService**: runtime linking
Ad-hoc Services: Architectural Vision (1/2)

- web application
- runtime construction is possible
- service has URL (shared in the smart space)
Ad-hoc Service: Architectural Vision (2/2)

- **Web-application**: HTML pages, JavaScript files, CSS styles
- **Construction**: client side vs. infrastructure
Two types of services

Ad-hoc Service: Composition on Client Side

- **Elementary**
  - small piece of information
  - e.g., data from a sensor

- **One-page**
  - fits one web-page
  - structured visualization
  - e.g., activity report

- **Complex**
  - several web-pages
  - essential data processing on the client side
  - e.g., image search function
Two type of services

Personalization

Relation of users and services

- Available services: this info shared in the smart space
- Personal information (personal space)
  - user registration
  - anonymous users
- known semantic matching methods
  - keyword matching with synonyms
- updates in personal space: context-awareness
- service composition on the client side
Conclusion

- Initial design solution
- Ad-hoc and off-the-shelf services: from client perspective
- Personalization in service delivering
- To appear in SmartRoom clients: Windows, Windows Phone, Android, Qt-based
- Open source code:
  http://sourceforge.net/projects/smartroom