SMOOL

The Smart Space Modeling, Access and Deployment framework

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What’s a **SMART SPACE**?

A smart space is *an environment* in which *devices interact* with each other to provide the users *added value services*. 
What are the main objectives of **SMOOL**?

- Manage **heterogeneity** among devices
- Provide a **Toolkit** to design, validate and deploy smart spaces
- **Flexibility** vs. ad-hoc solution
- Access through a **single application** to the smart space.
SMOOL is based on the well-known Smart M3 middleware. Branch of the Sofia Community.

- Publish/Subscribe paradigm
- Semantic Information Broker (SIB)
- KP libraries (J2SE, Android, C++)

Additional features developed:

- REST interface for the SIB
- Persistency manager
- Authorization & user management
The REST interface enables read-only access to (some) information stored in the SIB via HTTP
- Responses are JSON strings with the triples
- Queries are supported

The main goal of the REST interface is to become a gateway between hierarchically organized SIBs
- Local smart spaces can share data with smart spaces at a higher level
The SIB includes a **MySQL client** that connects to a database on start-up

- Store persistent data
- Load and publish **persistent data** to connecting KPs on start-up

Persistency enables the **smart personality** concept in the smart space

- The smart space stores the **preferences of the users** and shares them with the applications
• **SMOOL** includes access control with users, groups and permissions
  – Users and groups may define permissions to access produced data to other users/groups
  – Subscriptions may be linked to a user/group
  – “Guest” user may access limited data in the smart space
  – Communications on top of SSL
  – Users and permissions are only modified at design time
SMOOL has extended the SOFIA ADK:

- A single ontology is used:
  - Extensible
  - Managed by the SIB (ensuring **backward compatibility**)
- Improved KP generation wizard, including example application code:
  - Generation of **Model, SSAP and Connector layers**
  - **Direct compilation** to a shared library
- **Simplified KP API:**
  - Easier discovery and connection control
  - Model layer helpers
  - **Unified API** for all supported languages
• **SMOOL** provides an easy to use editor for non-expert users:
  – Model the devices connected to the smart space
  – Easily create smart applications
  – Define UI for smart-phone/tablet access
• The editor is currently under development, but…
  – …let’s see how it’ll look like!
Conclusions

- **SMOOL** aims at becoming a full-fledged framework for smart spaces design and development.

- It is based on the M3 middleware, with some add-ons required for the implementation of the smart spaces concept:
  - REST Interface. Persistency and Authorization

- Expert users may create their applications with the **SMOOL** SDK, which extends the SOFIA ADK

- Non-experts will be able to create simple smart spaces without coding

- The **SMOOL** Android application will be released along with the smart spaces editor
THANKS

For more information visit:

http://code.google.com/p/smool/