Service-interaction descriptions

Augmenting services with user interface models

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A better way of interacting with services
Problem situation
Smart city environment
heterogeneous environment

User interface development cannot be done manually

dynamic nature
1. Semantic Web Services + Model-Based User Interface Development

2. Semantic network on top of UIML

3. Hierarchical and reusable layout model
Architecture
Architecture
Architecture
Architecture
Architecture
Service-interaction descriptions
Service-interaction description

OWL-S services

Model-Based User Interface Development
Service-interaction description

OWL-S services

Model-Based User Interface Development
Task model
Service component
Service-interaction description

- OWL-S services
- Task model and related models
Service-interaction description

OWL-S services

Task model and related models
allows both **machines** and **humans** to interact with a service
4 abstraction levels

- Tasks and concepts
- Abstract User Interface
- Concrete User Interface
- Final User Interface
4 abstraction levels

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- Abstract User Interface
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4 abstraction levels

Tasks and concepts

Abstract User Interface

Concrete User Interface

Final User Interface
4 abstraction levels

Tasks and concepts
Abstract User Interface
Concrete User Interface
Final User Interface
1. annotate the leaf tasks
   - AIO
   - service component

2. extract the dialog model

set of ETS
Abstract User Interface

Concrete User Interface
Annotated dialog model

UIML

semantic network
Interactive capabilities

Semantic network

- RDF
- UIML vocabulary

AIO

CIO

Data type
Service Manager

User Interface

widget selection

CIO

Service component

AIO

data type

Interaction Capabilities

Client Device
There is still something missing ...
What we have now

Abstract User Interface

CIO

CIO

CIO

CIO

CIO

CIO
Layout model

template

instance
Use case
Photo sharing service
collecting the required services

view selected picture

rate picture

view picture

view rating

enter rating

submit rating
I collecting the required services

- PictureID
- View picture
- Image

- PictureID
- View picture rating
- Rating

- PictureID
- Submit picture rating
- Rating
creating an annotated task model
view selected picture

view picture

view rating

Image

Output

Rating

Output

enter rating

submit rating

Submit picture rating

Input

Action

Rating
creating a layout template
creating a layout template
4 instantiating the layout template
instantiating the layout template
the resulting user interface
the resulting user interface

Windows Mobile

Java CDC
Conclusions

Semantic Web Services + Model-Based User Interface Development

Semantic network on top of UIML

Hierarchical and reusable layout model

allow both **machines** and **humans** to flexibly interact with a service
Backup slides