MoEOWL-S

Personalized Mobile-oriented Web Service Orchestration System

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Outlines:

- Overview of mobile oriented service orchestration system
- Divides the mobile context-related issues into four domains
- Four domains architecture and implementation
- System usage in MoCIS (Mobile-oriented City Information System)
- Future works

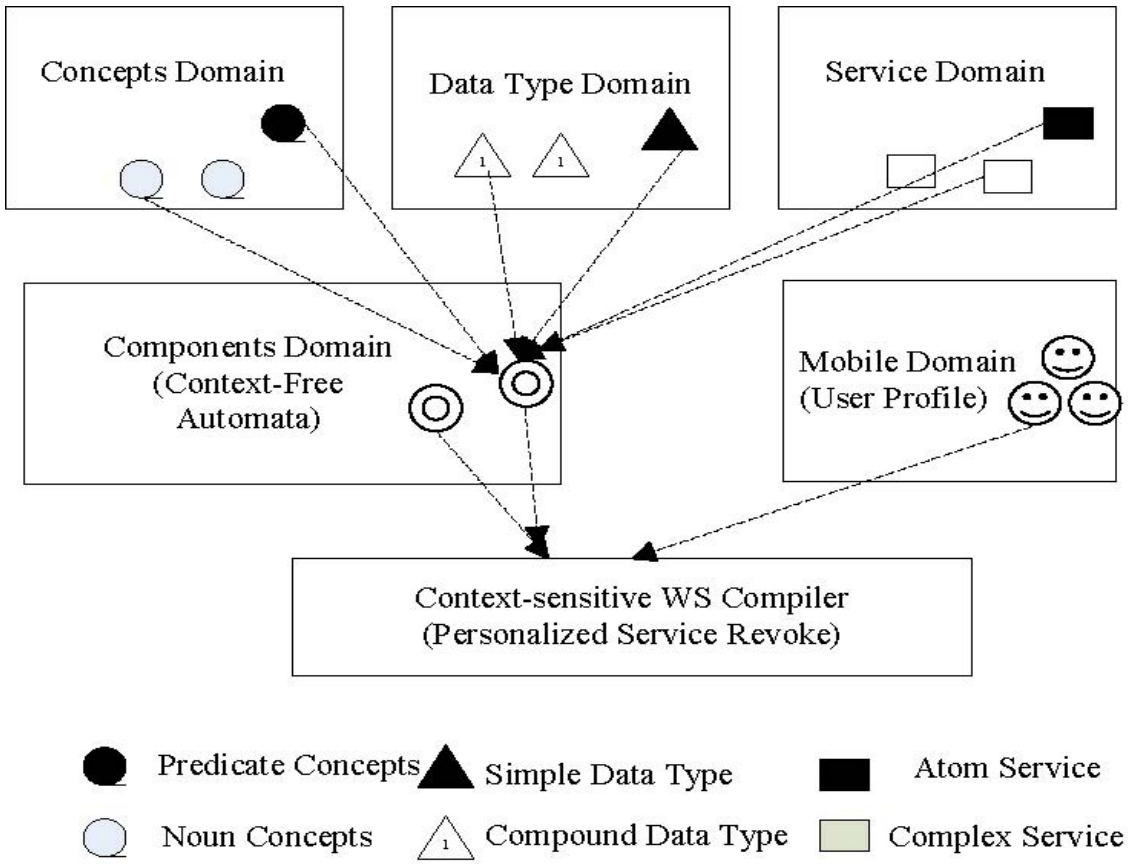
Overview of mobile oriented service orchestration system

- Context-sensitive
- Thin-client
- Complex Service composition
- Efficiency

Divides the mobile context-related issues into four domains (continued)

- Semantic Domain
- Data Type Domain
- Logic Domain
- User Profile Domain

Divides the mobile context-related issues into four domains



The first – Semantic Domain

- The first domain, Semantic Domain, majors in the concepts in mobile service, departing those concepts into “predicates” and “nouns”, and then we describes the service with a Regular grammar upon these concepts. These concepts are described with Resource Description Framework(RDF)

The second – Data Type Domain

- Data type Domain majors in the output and input data type, by extending and compositing XML Schema (XSD) and Resource Description Framework Schema (RDFS). And also provide a interface to support complex data type for self-defining.

The third – Service Domain

- Service Domain, provides the abilities in the orchestration of services or web service composition, based on the Business Process Execution Language for Web Services (BPEL4WS or BPEL for short). This domain provides a link interface for implementing service compositions logic, and this interface has three instances, “implies”, “and”, “or”, individually describing service including, service revoking sequence, and service switching.

The last – User Domain

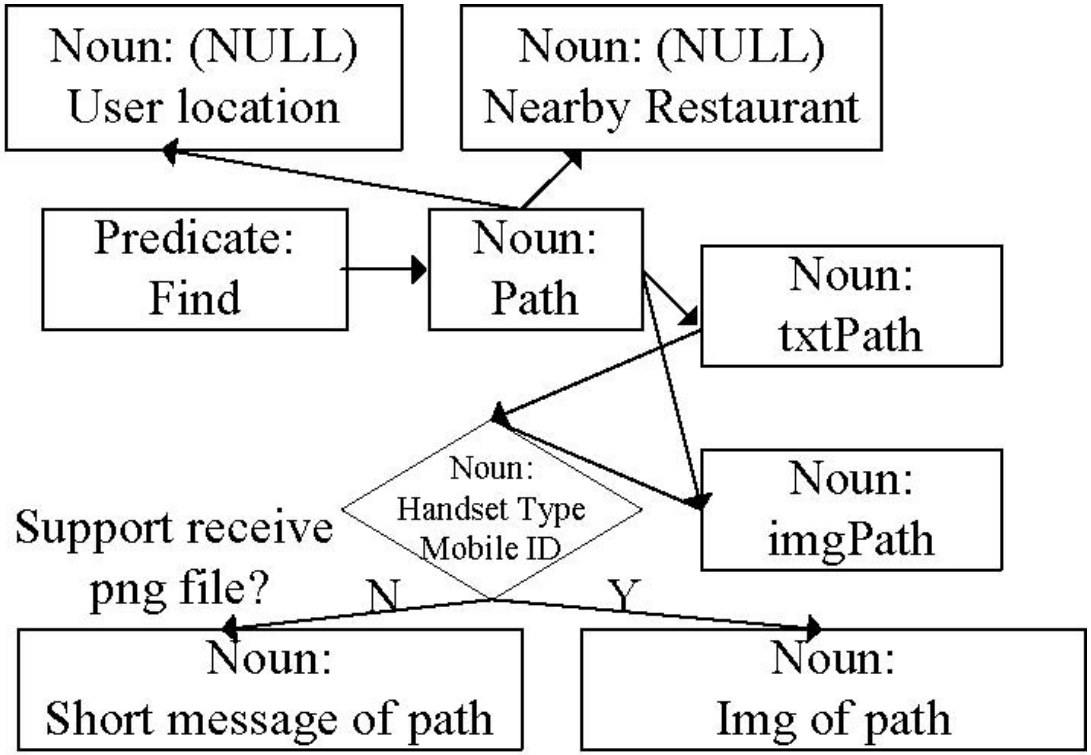
- User Domain, considers the key issues with user information in wireless system, such as handset type, dynamic location, and so on, and helps to provide personalized service. For efficiency, we save all User Domain info in database.

MoEOWL-S Implementation

- Based on Jena Framework. Jena is a Java framework for building Semantic Web applications. It provides a programmatic environment for RDF, RDFS and OWL, SPARQL and includes a rule-based inference engine.
- Lexical Analysis & Language. The core domains , including concepts domains, data type domains, logic domains, user domain are described in English
- Plug & Play adapter. With a adapter layer, provide service with Chinese Gbk, Tanwan or Hongkong Big5, or Japanese. The reflection can be implemented easy with keywords set and later be upgrade with NLP to erase ambiguous language.

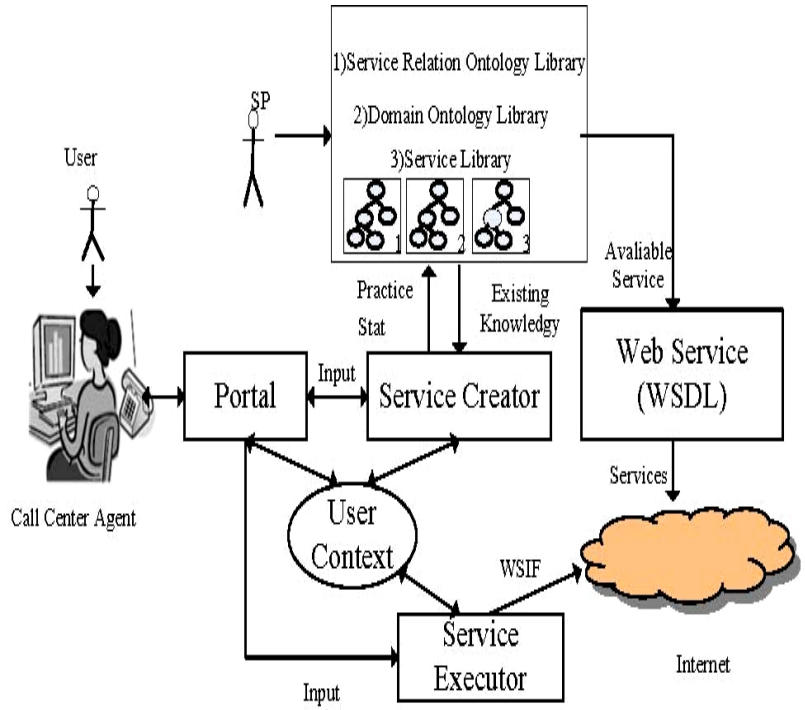
A simple application

- Find the path to nearby restaurant



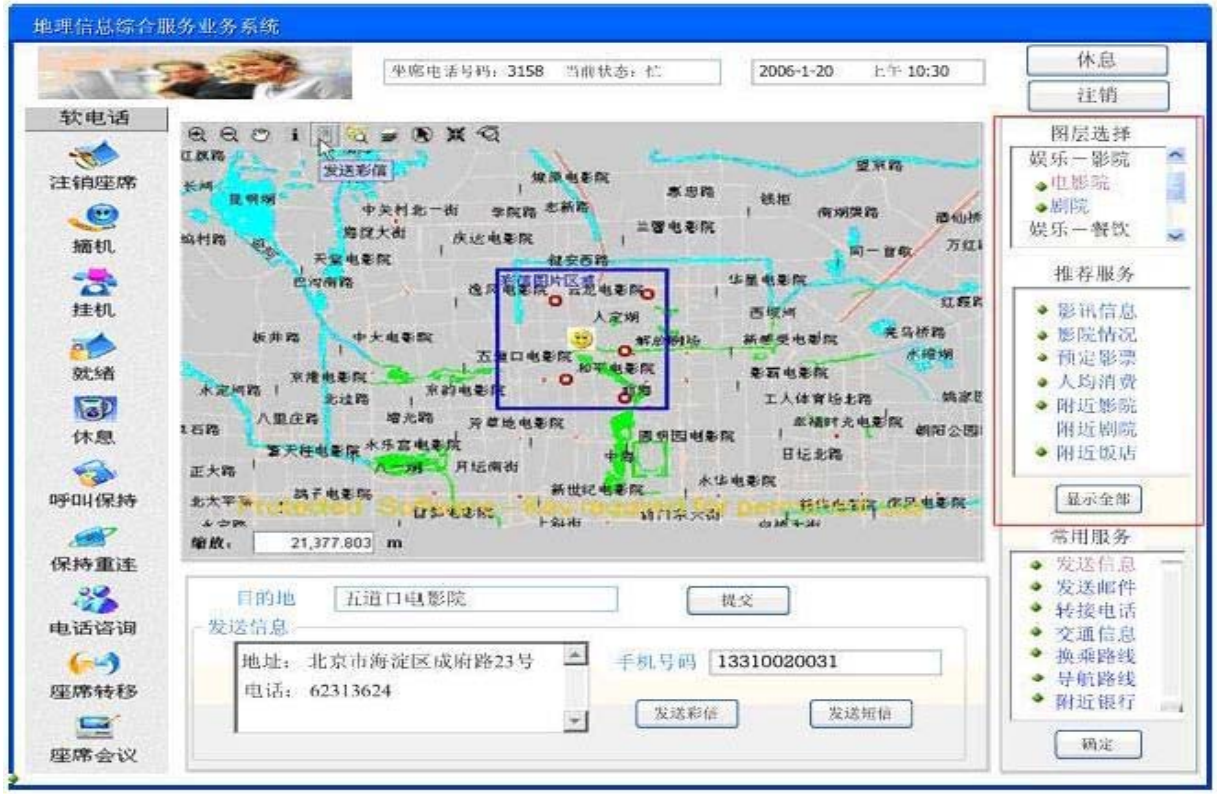
System Usage – Mobile oriented City Information System (MoCIS) (Continued)

- MoCIS Figure is a mobile city information system based on MoEOWL-S. User can get the service from a call center, using a wireless client.



System Usage – Mobile oriented City Information System (MoCIS)

- find the WuDAOKou Cinema.



Future works

- There are at least three major problems in our next work.
  - Merging problem, if merging two ontology library, the classes and terms maybe overlap.
  - Commitment problem. If the user request are not precise, more and more service including simple service and service composition, are provided. How to sort these service is still not take into account.
  - Changing problem. If one concept is updated,all the concept domain may be updated. How to update automatically and testing if new concepts relations have some bug are still not taken into count.

The End

- Thank you very much