Model transformation of collaborative business process into mediation information system

Jihed Touzi, Frédérick Bénaben, Hervé Pingaud
Ecole des Mines d’Albi-Carmaux, Centre de Génie Industriel, Albi, 81000, France

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Outline

• Mediation architecture for system interoperability design
• MDE approach to develop a solution
• An open source prototype
• Conclusions and perspectives
Mediation architecture for interoperability design (1)

The Mediation Information System Engineering (MISE) Project
- Joint collaboration between CGI lab and EBM WebSourcing company -
(2 ANR project fundings + internal resources)
Mediation architecture for interoperability design (2)

**ARPA I3 (Intelligent Integration of Information)**
Defence Advanced Research Projects Agency Architecture

**Mediator** = component to provide mediation services to improve information value being transmitted in response to a customer query, reformulation and/or content, processing; associated with a responsible owner. It tries to
1. assure stable delivery of services, even when resources change
2. assess disparity of concepts and maintains tools to resolve them
3. invoke tools to resolve format differences

The I3 architecture distinguishes three such layers, each providing a distinct category of service:

1. **Coordination Services** = covers resource, discovery, distribution, invocation, scheduling, etc.
2. **Mediation Services** = covers value-added processing on query text and resulting content, as query relaxation, data filtering and processing, generating new information,
3. **Wrapping Services** = covers the use of wrapper and similar tools which adapt legacy resources to conform with access standards and conventions used in mediation and coordination
Mediation architecture for interoperability design (3)

ARPA I3 (Intelligent Integration of Information)
Defence Advanced Research Projects Agency Architecture
Scope of our presentation in the MISE project

Knowledge about collaborative networks

**Business layer**
(recommendations)
Specific network collaborative model
BPMN model of a collaborative process (CP)

**Logical layer**
UML mediation information system model (MIS model)
Configuration model for the MIS layout using an ESB solution

**Physical Layout**
MIS

Rajsiri PhD (2006-2009)
Touzi PhD (2004-2007)
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• Mediation architecture for system interoperability design
• A Model Driven Engineering approach to develop a solution
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• Conclusions and perspectives
Example of a collaborative process

Business Process Modeling Notation (BPMN, 03)
Models Morphism : mapping and transformation

BPMN model

(Business level)

Model B

(logical level)

M1

M2

M3

« mappings »
The SOA metamodel

PIM4SOA (Benguria et al, 06) : Services, Informations, Processes and Quality of Services
The transformation rules

- Three categories of transformation rules which correspond to the three views defined.

- **Services view**
  - 5 rules
  - « services view »

- **Information view**
  - 2 rules
  - « information view »

- **Process view**
  - 9 rules
  - « process view »

Associations to link the generated UML classes
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Structure of the prototype

Intalio Designer©:
BPMN collaborative
process modelling
tool

XML file of the process

ATL©:
Designing
and operating of
the transformation
rules

UML file of the SOA
model

TOPCASED©:
CASE tool for
UML model
publications
<Model> Collaborative information system

Name: Collaborative information system

Visibility: pub

1. Set {IN-generic-Supplier selection, INSend negative answer, INControl accepting}
2. Set {INSend negative answer, INControl accepting}
3. Set {INSend negative answer, INControl accepting}
4. Sequence {INSupplier answer, INSupplier answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend negative answer, INSend neg
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A multifold view of Model Driven Interoperability

Model driven engineering of MIS
Perspectives

Modèles de transformation

SOA model

Injection

ESB model

Génération de fichiers de configuration

Additional knowledge

(UML profile for SOA)

(UML profile for ESB)
Many thanks for your attention