CARL VON OSSIETZKY universität OLDENBURG
FAKULTÄT II
INFORMATIK, WIRTSCHAFTS- UND RECHTSWISSENSCHAFTEN

VERY LARGE BUSINESS APPLICATIONS
Carl von Ossietzky Universität Oldenburg

Lightweight Semantic-enabled Enterprise Service-Oriented Architecture

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Oldenburg 07.12.2012

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Agenda

- Introduction: Service-Oriented Architecture
- Semantic-enabled Enterprise SOA
- Business Case
- Prototypical Implementation
- Evaluation
- Conclusion

SOA

- Service-Oriented Architecture (SOA) is a software architecture model that provides services either to end-user applications, to executable business processes or to other services through published and discoverable service interfaces.

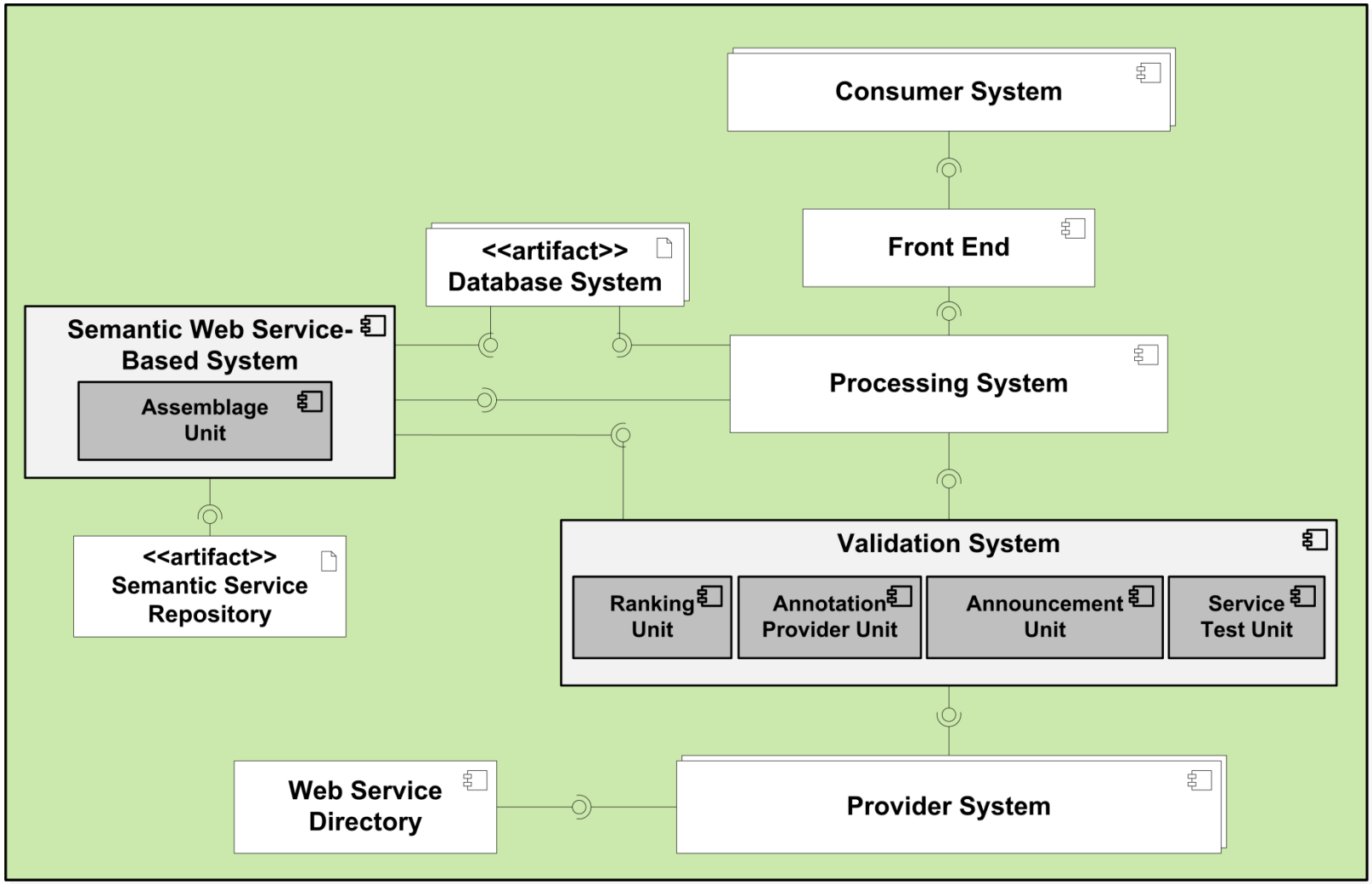
- SOA motivations include a range of technical and business reasons. The most common motivations are:
  - Agility, flexibility and alignment
  - Reuse, integration of applications and data
  - Reduce costs, Speed and ease of project deployment
  - Support external collaborators
  - …

Semantic-enabled Enterprise Service-Oriented Architecture

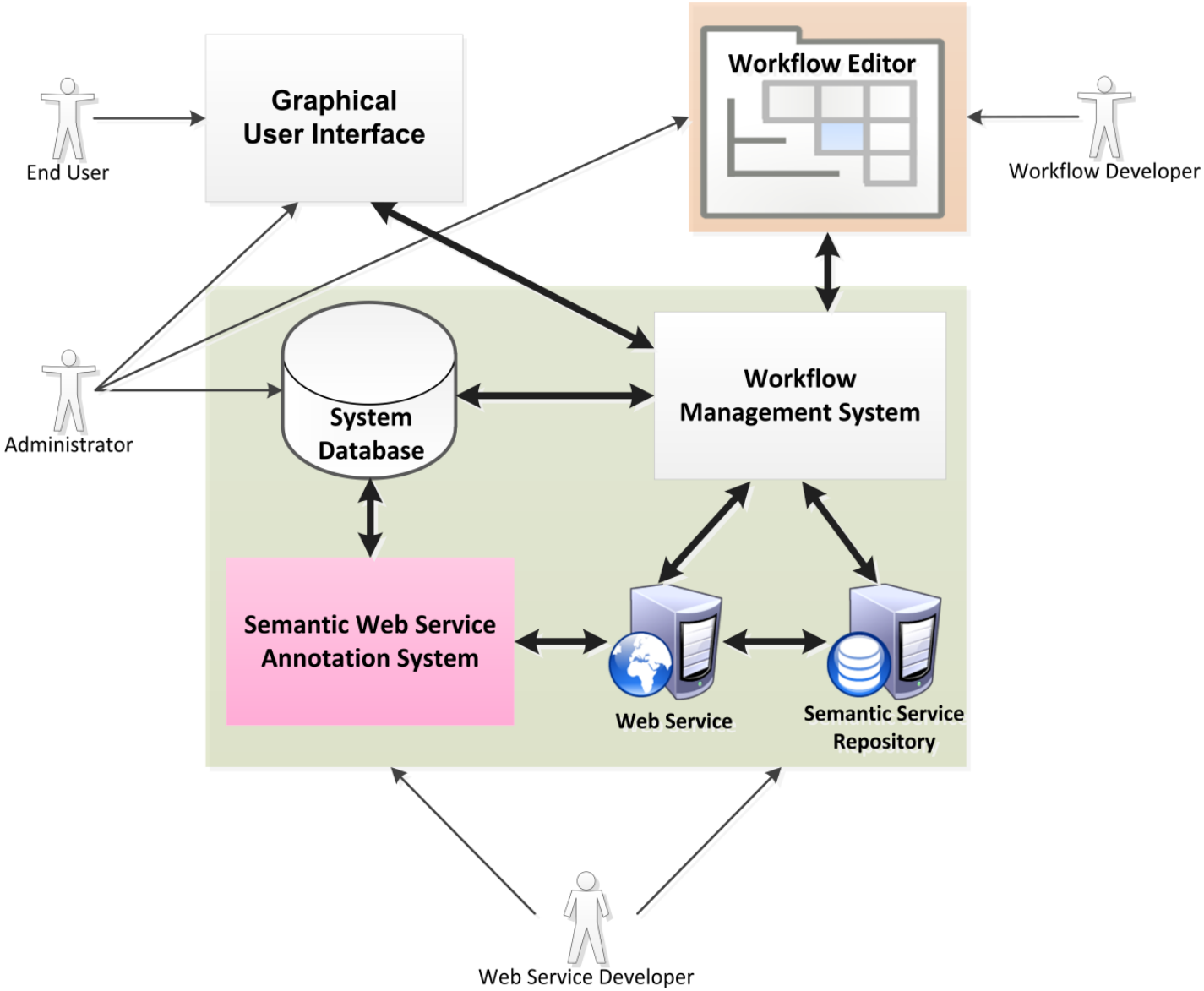
- SESOA can be considered as an enhanced SOA concept. It is an enterprise solution fully based on semantic-annotated Web Services. It represents a lightweight Web development framework. Thereby, the indexing and discovery of these services will be more dynamic and comprehensive.

- SESOA is dynamically adapting to the potential changes that might accompany any enterprise requirements, goals and visions. This is realized by easing the phases of Web Services discovery, selection, invocation, composition and monitoring in any distributed and open environment.

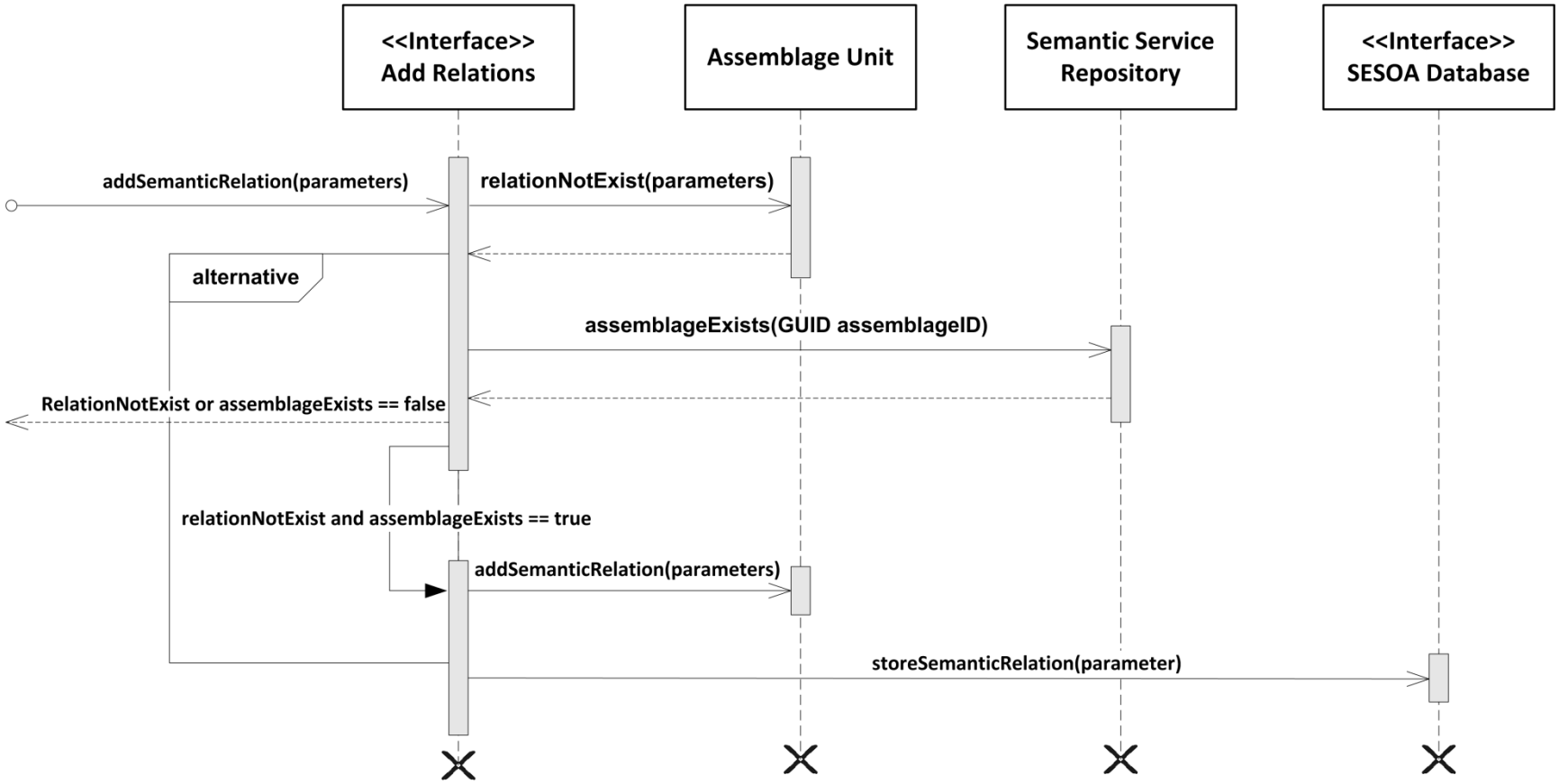
SESOA Reference Architecture



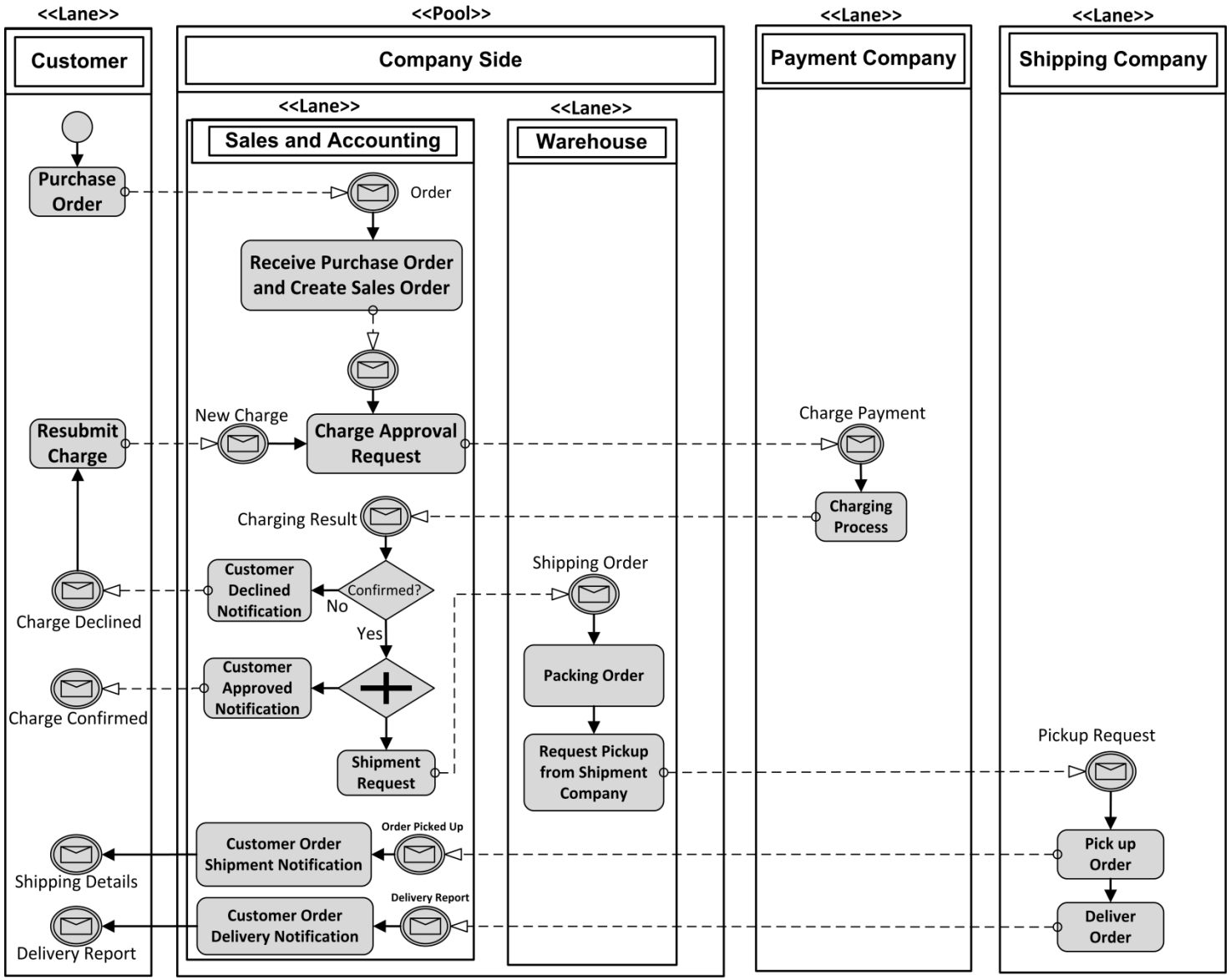
Components Main Interactions



Add Assemblage - Service Relation



Business Case - ERP Selling Business Process



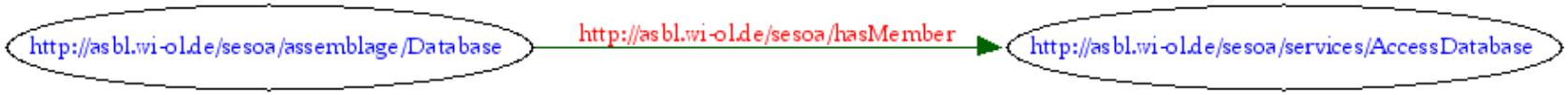
Prototypical Implementation - SESOA Development Framework

Triples of the Data Model

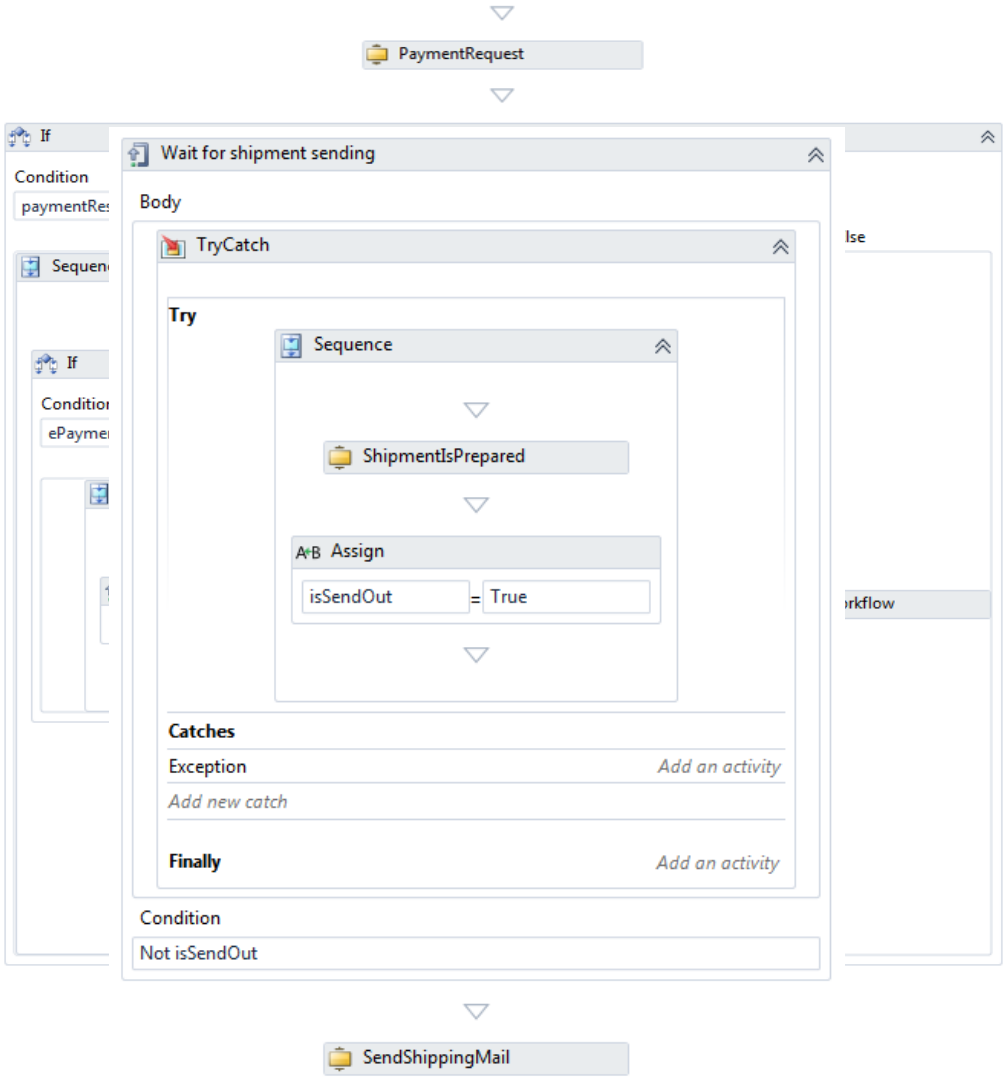
Number	Subject	Predicate	Object
1	http://asbl.wi-ol.de/sesoa /assemblage/Database	http://asbl.wi-ol.de/sesoa /hasMember	http://asbl.wi-ol.de/sesoa /services/AccessDatabase

```
<?xml version="1.0"?>
<rdf:RDF xmlns:assemblage="http://asbl.wi-ol.de/sesoa"
xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
xmlns:sesoa="http://asbl.wi-ol.de/sesoa/">
        <rdf:Description rdf:about="http://asbl.wi-ol.de/sesoa
/assemblage/Database">
                <sesoa:hasMember rdf:resource="http://asbl.wi-
ol.de/sesoa/services/AccessDatabase" />
        </rdf:Description>
</rdf:RDF>
```

Graph of the data model



Prototypical Implementation - Selling Business Process



Evaluation (1/2)

These questions need to be answered while evaluating the concept in any business domain:

- What requirements are already designed, covered and implemented?
- What artifacts in the system have particular importance?
- How does the prototype change from its previous versions?
- Which elements of other partial subsystems are affected by changes on a particular artifact?
- What percentage of completion for the implementation can be adopted based on outcomes-objectives relations?

Evaluation (2/2)

- ERP Systems
  - Selling Business Process
- CEWE Color AG & Co.
  - Customer care service as a main application unit
- On-Demand Business Intelligence
- IT-For-Green EU-EFRE project
- Corporate Environmental Management Information Systems

Conclusion

- SESOA is an enterprise Web Service-enabled SOA solution that links businesses to external systems by assembling Web Services in assemblages
- Web Services are registered in assemblages based on business criteria and annotated using RDF statements
- SESOA reference architecture has been presented
- Different evaluation scenarios were illustrated

Questions?

Thank you very much

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