



Service-Oriented Development Platform for Realization of e-

**Xiaohua Lu, Yinsheng Li, C-C
Lo, Kuo-Ming Chao**



Outline

- Introduction
- Service-Oriented Software Engineering for E-Business
- A proposed Service-Oriented Platform for E-Business
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Introduction

- SOA (Service-Oriented Architecture) is becoming a leading paradigm for the development of information systems and application integration.
- A major obstacle in developing enterprise-level Web services and transactional applications is that the current platforms, such as those that conform to J2EE and .NET, are based on object-oriented component models.



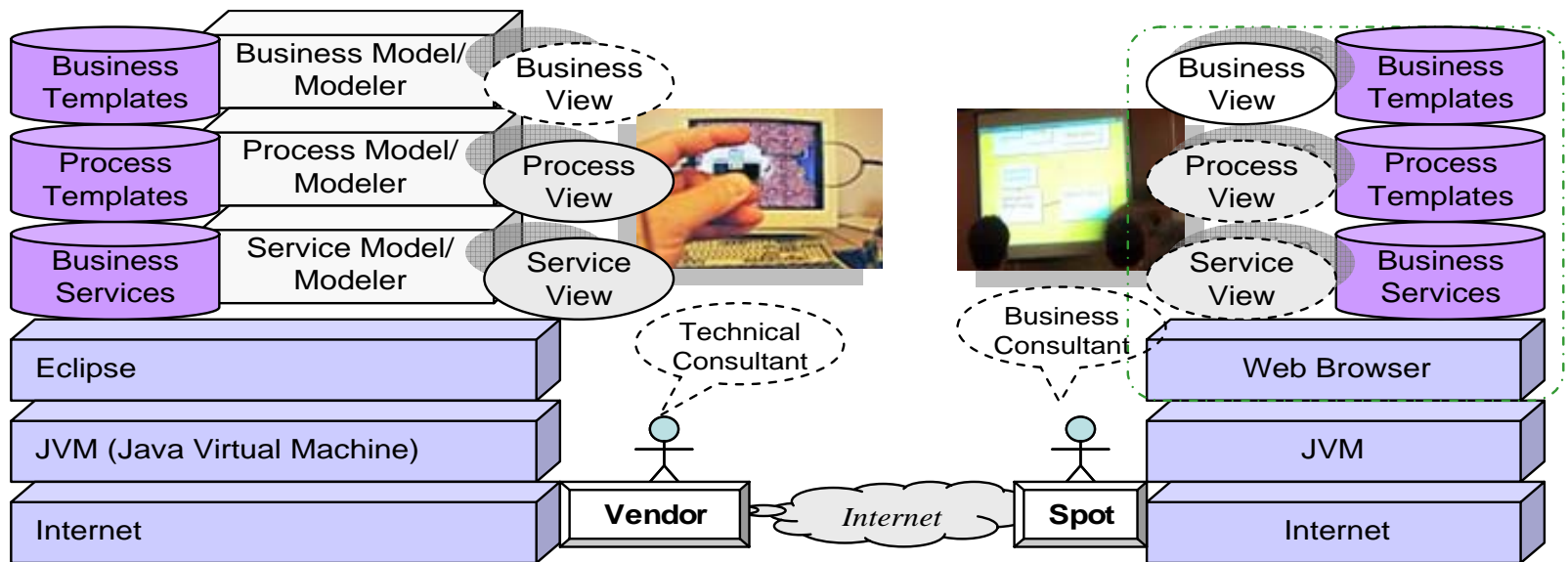
Service-Oriented Software Engineering for E-Business

- Service-oriented software engineering should facilitate service modeling and description.
- It should enable service-oriented business planning (top-down) and application development (bottom-up).
- It should provide technologies for common semantics and meta-model for service-oriented development methodologies.
- It should specify technologies to enable interoperability between the service-oriented tools and platforms.

A Service-Oriented Platform for E-Business

- A multi-model driven collaborative development platform for service-oriented e-Business systems should be designed.
- It supports top-down business planning and bottom-up service-oriented development.
- It supports service-oriented software engineering and application development.
- The platform is driven by three models, i.e., service meta model, process model and business model.

Architecture of the Multi-Model Driven Collaborative Platform



Multi-Model Development Platform for e-Businesses

The screenshot displays a software development environment with two main windows. The left window, titled "VendorCreditService - Intelligent Web ...", shows the configuration for an ontology. The right window displays a UML diagram illustrating the relationships between various entities in an e-business ontology.

Ontology Configuration (Left Window):

- Service:** Profile | Process | Grounding
- Ontology Information:**
 - Ontology Version: 1.0
 - Ontology Comment: This ontology represents OWL-S service description for Vendor Credit web service
- Service Information:**
 - Service Prefix: CreditConsultant
 - Service Type: VendorCredit
- Provider Information:**
 - Provider Namespace: <http://ebusiness.fudan.edu.cn>

UML Diagram (Right Window):

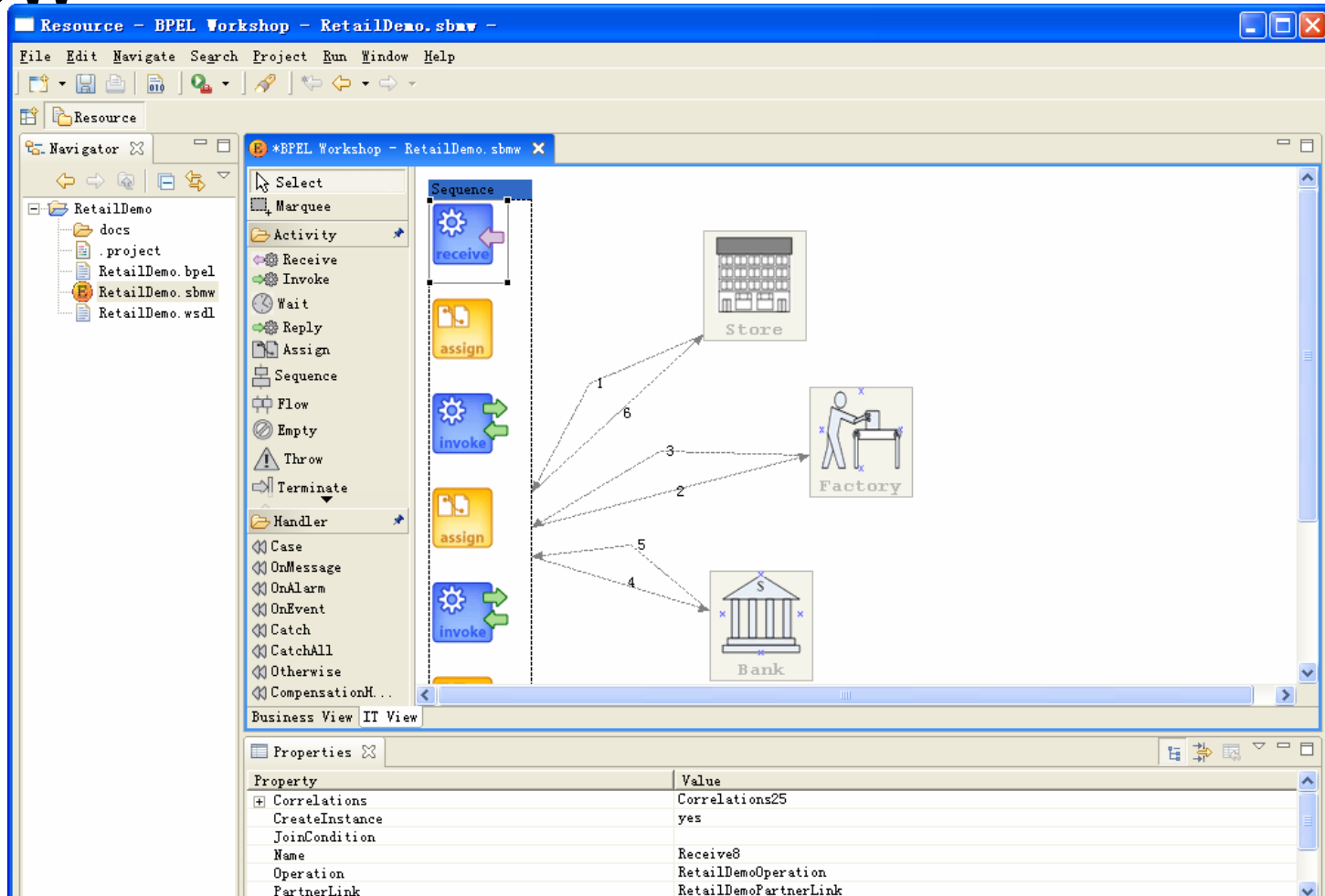
The diagram shows the following entities and their relationships:

- Store** (represented by a calculator icon) is connected to **Retailer Headquarters** (represented by a globe with two people shaking hands) via two directed edges labeled 1 and 8.
- Retailer Headquarters** is connected to **Credit Consultant** (represented by a person at a desk with a computer) via two directed edges labeled 2 and 3.
- Retailer Headquarters** is connected to **SupplierA** (represented by a person at a desk) via two directed edges labeled 4 and 5.
- Retailer Headquarters** is connected to **Bank** (represented by a classical building) via two directed edges labeled 6 and 7.

Table (Bottom Right):

	Value
name	Retailer Headquarters

Service Model Driven Development View

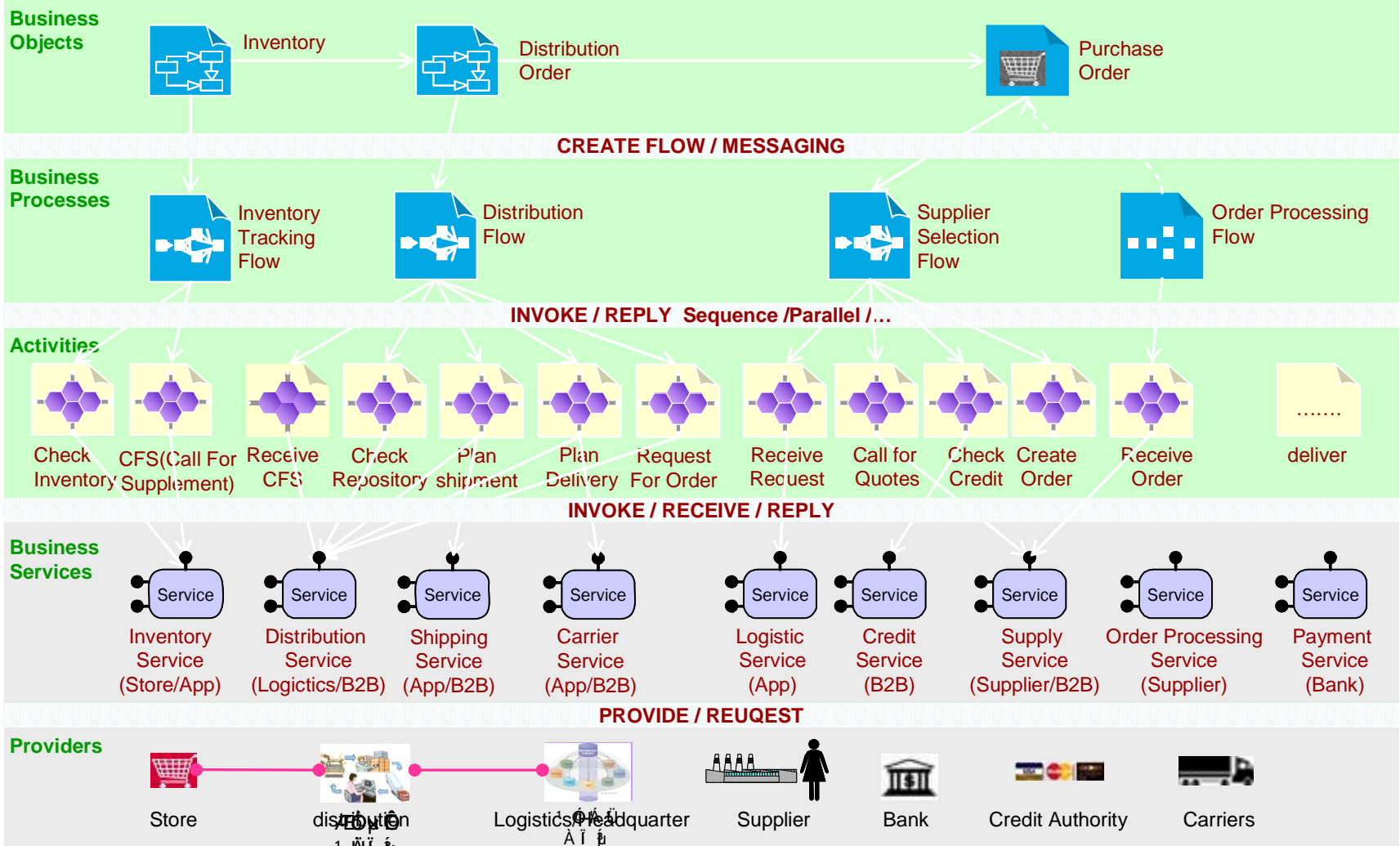


Integration Services

- Integration services, supporting five types of web services, provide template-based integration and collaboration in e-Businesses. They are
 - (i) coordination and cooperation: such as adapter services and process-flow-like composition services
 - (ii) ontology and semantic integration
 - (iii) platform services, such as messaging
 - (iv) security services, such as authentication and authorization
 - (v) wrapping services, such as communication enabler.

Retail Supply Solution

Developments on the Platform



Conclusion

- This research proposes a multi-model driven collaborative development platform for building service-oriented e-Business systems.
- The platform supports service-oriented software engineering for application developments.
- It employs three views, i.e., business view, process view, and service view to support business and technical consultants' operations.
- Service meta-model, process model and business model are supported by a semantic reasoning engine to facilitate intelligent service discovery, process execution and business-business integration.
- An example has been used to demonstrate its functionality.