Transform your software architecture into a reusable asset

OMG’s Second Workshop on Web Services

Orchestrating Web Services from a UML Development Platform

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Agenda

• Modeling Business Scenarios and Business Processes with UML

• Reusing Business Scenarios, Business Documents and Web Services across Business Processes

• Implementing a Business Process using Web Services from a MDA platform
DCX Business Process: Engineering Change Management

- Issue change request
- Originator
- DCX
- Partners
- Process Request (estimated time and cost)
- Request info
- Return info
- Process info
- Disapprove
- Approved
- OR
- Distribute work order
- Return results
- Release new data
- Model Business Scenarios and Business Processes with UML
DCX Business Scenario #1a: Engineering Change Request Without Consequences

Originator

Issue change request

Process Request (estimated time and cost)

Approve

DCX

Request info

Positive reply

Process info

Distribute work order

Release new data

Partners

Return results

Release new data

Modeling Business Scenarios and Business Processes with UML
DCX Business Scenario #1b: Engineering Change Request Without Consequences

- Issue change request
- Process Request (estimated time and cost)
- Disapprove
- Request info
- Negative reply

Originator → DCX → Partners
DCX Business Scenario #2a: Engineering Change Request with Consequences

- Issue change request
- Process request (estimated time and cost)
- Approve with consequences
- Release new data

DCX

- Request info
- Positive reply with consequences
- Process consequences
- Initiate work order
- Return results
- Release new data

Partners
DCX Business Scenario #2b: Engineering Change Request with Consequences

- **Originator**
  - Issue change request
  - Process request (estimated time and cost)
  - Disapprove

- **DCX**
  - Request info
  - Positive reply with consequences
  - Process consequences

- **Partners**
Business Scenarios allow an incremental approach to business process modeling

**Business scenarios**
- Sequence diagram #1
- Sequence diagram #2
- Activity diagram #3
- Sequence diagram #4

**Business process**

**Activity diagram**
Behaviors found in Business Scenarios are Mapped with Web Services

Business scenarios

- Sequence diagram
- Activity diagram
- Sequence diagram
- Sequence diagram

Web Services

- Web Service creation and discovery

Web Services can be reused across business processes
**Business Scenario integration:**
- Automatic Synthesis of the global view of the business process:
  - Generates the structure of the global view of the business process

A business process is a multiparty collaboration between a set of Web Services and XML documents. Each Web Service is provided by a trading partner involved in the collaboration.
• **Business Scenario integration (continued):**
  – Automatic Synthesis of the global view of the business process (continued):
    • Generates the behavior of the global view of the business process

Enforces a consistent view of the contract among trading partners
• **Business Scenario integration (continued):**
  – Automatic Synthesis of the local views (Web Services) of the business process:
    • Generates the behavior of the local view of a trading partner that plays a role in the business process
• Business Scenario Integration (continued):
  – Automatic Synthesis of the local views (Web Services) of the business process (continued):
    • Generates the structure of the local view of a trading partner that plays a role in the business process
    – Binds operations of a business process with messages
    – Binds operations with a port implementation (manual step)
• **Import/export using:**
  – Proprietary utilities among same UML modeling tool vendors
  – XMI 2.0 among different UML modeling tool vendors
• **Facilitates collaborative development**
Implementing Business Process using Web Services from a MDA Platform

• Loosely-coupled implementation for a single business process

Trading partners build Web Services using a .NET or Java platform and different vendors for their workflow engine
• Provides a UML platform for modeling:
  – Business scenarios
  – Business processes
  – Business documents
  – Web Services
Summary

• **Business scenarios can:**
  – Facilitate a collaborative and incremental approach for designing a business process
  – Reduce the risk and cost of creating and maintaining a business process

• **Synthesis of business scenarios generates the static and dynamic view of:**
  – The global business process
  – The local view for each trading partner, which is consistent with the contract describing the interaction among them
Summary

• **UML profile, MDA and XMI can:**
  – Maximize UML investments without requiring a working knowledge of the standard
  – Enforce a business process over a heterogeneous implementation

• **Web Services for EAI or B2B can be implemented as:**
  – Activities orchestrated by a workflow engine for each trading partner involved
  – Composite Web Services using a programming language like Java, C#, or VB