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
- Process Request (estimated time and cost)
- Disapprove
- Approve
- OR
- Request info
- Return info
- Process info
- Distribute work order
- Return results
- Release new data

Originator | DCX | Partners

Modeling 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
- Release new data

**DCX**
- Request info
- Positive reply
- Process info
- Distribute work order
- Return results
- Release new data

**Partners**
DCX Business Scenario #1b: Engineering Change Request Without Consequences

- Originator: Issue change request
- DCX: Process Request (estimated time and cost)
- Partners: Request info

Flow:
- Originator to DCX: Issue change request
- DCX to Partners: Request info
- Partners to DCX: Negative reply
- DCX to Originator: Disapprove
DCX Business Scenario #2a: Engineering Change Request with Consequences

- Issue change request
- Process request (estimated time and cost)
- Approve with consequences
- Release new data
- Request info
- Positive reply with consequences
- Process consequences
- Initiate work order
- Return results
- Release new data
DCX Business Scenario #2b: Engineering Change Request with Consequences

- Issue change request
- Process request (estimated time and cost)
- Disapprove
- Request info
- Positive reply with consequences
- Process consequences

Modeling Business Scenarios and Business Processes with UML
Behaviors found in Business Scenarios are Mapped with Web Services

- Business scenarios
  - Sequence diagram
  - Sequence diagram
  - Activity diagram
  - Sequence diagram

- Web Services
  - Web Service creation and discovery

Web Services can be reused across business processes
Business Scenarios allow an incremental approach to business process modeling.
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)
Reusing Business Scenarios, Business Documents and Web Services across Business Processes

- 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
Demonstration

- 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