Generic BPEL Processes: Integrating Process Design and Execution Based on Generic Reuse and MDA

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The Problem: "Engineering Gap" between Business Engineering and Application Engineering!
• Questions

– Do you think that business and technical models will be designed by the same person?
– Do you think that the structure and content within business and technical models will be the same?

• How can we ensure that the business process models will be still valid for tasks beside SOA? (communication, simulation, compliance…)
• How can we achieve that the technical SOA configuration is shielded from but controllable by the business process?
• How can we separate business and IT relevant content and still link it together?
Methodological Background:
Why do different models emerge in the SOA world?
Each Service / Composite Services represents “a business process fragment (with one or many activities)”
Business Process Structure

Composite Service

represents a

Technical Process Fragment
Composite Service

represents a

1 …n Relationship between Business Processes and a Technical Process Fragment
These two types of processes have different targets.

Due to this they represent different:
- Syntax
- Semantics
Business Process Fragments

- Business point of view
- Contextual driven, with references to predecessors and successors
- Usually more than one modeled business process used within various business scenarios

⇒ Used for process communication, simulation, compliance,…

Technical Process Fragment

- Technical point of view
- Data and interface driven, designed to be automated
- Usually only one automated business process (represented by a service)

⇒ Used for process execution
• What are physicist doing when the complexity within a model becomes to big?

• ...they change the scale!

• This means „from picture to film“!

• ... or from a Traditional Process Modeling and IT Implementation to an Integrating Process Design and Execution Based on Generic BPEL Processes and MDA Techniques
The Solution:
The “Divide and Conquer” approach in Business Engineering and Application Engineering!
• Challenges in combining business processes with technical processes
  – Create a connection between the business and IT world without semantic mixture
  – Ensure flexibility on the process modeling side
  – Ensure stability on the IT modeling side
  – Secure re-usability of implemented IT processes within the business world
• Solution: “industrialized” production of processes using one generic BPEL process for many business processes
Within this BPEL Process the complete logic to control and dispatch the “real” services (according to the transferred process flow) will be covered. This service also handles required data transformations.

This BPEL Process calls the Rule Engine and delivers decision support to the “Generic BPEL Process” to decide on the process flow.

This XML File delivers information about the business oriented process flow.
<?xml version="1.0" encoding="UTF-8" ?>

<activities>
  <activity name="Kundenkreditrahmen prüfen" start="true" service="Credit Rating Service">
    <next_activities>
      <next_activity name="Kundenanruf bearbeiten" />
    </next_activities>
  </activity>
  <activity name="Kundenanruf bearbeiten" service="" >
    <description>Dies ist ein Dummy Prozess. Der Prozess kann sich verzweigen. Eine Verzweigung wird durch mehrere Optionen unter "next_activities" definiert.</description>
    <next_activities>
      <next_activity name="Zählte Kundenanzahl in Warteschleife" />
      <next_activity name="Frage nach Anrufgrund" />
    </next_activities>
  </activity>
  + <activity name="Zählte Kundenanzahl in Warteschleife" service="" >
  + <activity name="Hilfe Kunden in Warteschleife" service="" >
  + <activity name="Frage nach Anrufgrund" service="" >
  + <activity name="Änderung der Kundendaten" service="" >
  + <activity name="Grund der Beschwerde erfragen" service="" >
  + <activity name="Beschwerde erfassen" service="" >
  + <activity name="Bestellung aufnehmen" service="" >
  + <activity name="Liefertermine ermitteln" service="" >
  + <activity name="Kundenzufriedenheit erfragen" service="" >
  - <activity name="Telefonat mit Kunde beenden" service="" >
    <description>Nett verabschieden, Hoerer auflegen</description>
    <next_activities />
  </activity>
</activities>
• Benefit for the Business
  – Business specific modeling domain
  – Clear separation from technical content
  – Capability to use tools optimized for the business process design
  – Processes can be adjusted purely from the business view
    (prerequisite: correctly implemented and linked technical processes)

• Benefit for the IT
  – IT specific modeling domain
  – Clear separation from business content
  – Capability to use tools optimized for the IT design
• Usage Scenarios for this approach:
  
  – Environments with a high amount of automated backend processes
    • Financial Institutions
    • Telecommunication
    • Logistics
    • ...
  
  – Environments with the demand to prepare information for different stakeholders
    • Process Documentation
    • Process Certification
    • Auditing
    • IT-Development
    • ...

„If everything seems to be under control, you‘re just not moving fast enough“
(Mario Andretti – Race Driver)