



A Business Aware Transaction Framework for Service Oriented Environments

Benedikt Kratz M.Sc. (B.Kratz@uvt.nl)

Tilburg University – Infolab

Ph.D. Supervisor: Prof. Dr. M.P. Papazoglou

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Overview

- Introduction
- Research Challenges
- Business Transaction Framework Concepts
 - > Abstract Transactional Constructs
 - > (Abstract) Composite Business Transactions
- Future Work
- Summary
- Questions & Discussion

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 - ATC
 - ACBT
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Introduction

- Part of the XTC project
- Individual Goal:
 - > Formal specification of transactional semantics for automated long-running business processes with (multi-party) business transactions in service oriented environments

consistent and reliable execution of these business transactions and processes

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- Transactions key concept to ensure consistency and reliability
- Integration between the concepts of Business Transactions and *Data Transactions*

Research Challenges

- Technical Challenges:
 - > Process structure determines suitable transaction model
 - > Heterogeneous participants
- Business Challenges
 - > Transaction support is required for the complete business protocol
 - > Bi-directional integration of agreements and transactions

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BTF Concepts - ATC

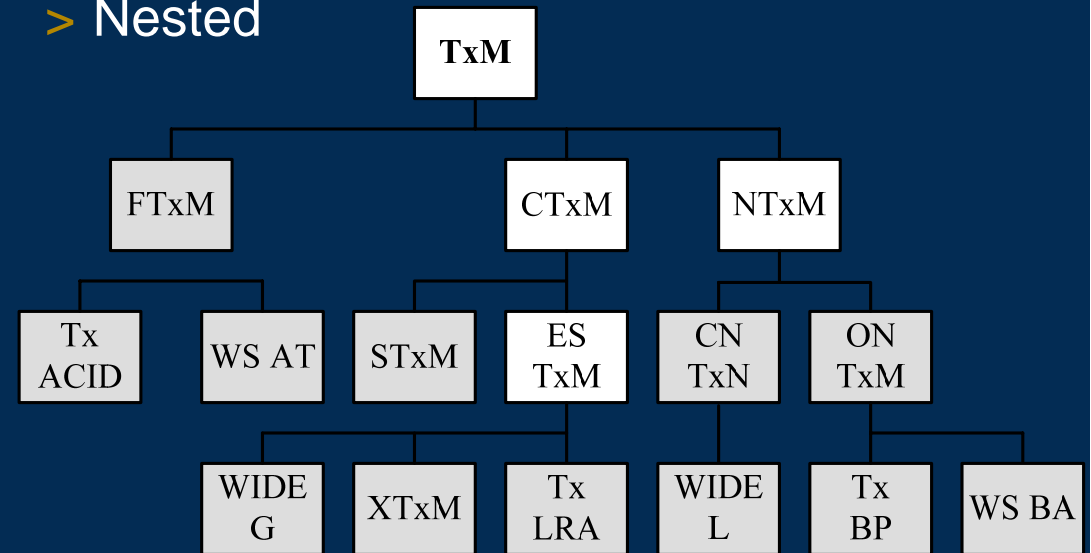
- Abstract Transactional Construct (ATC)
 - > Definition Phase Concept
 - > Abstract representations of transaction mechanisms
 - > Small ADT like components
 - > Two Kinds of ATCs:
 - Transactional
 - Business

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BTF Concepts – ATC (cont.)

> Transactional ATC

- Represent existing Tx Models & Protocols by composing suitable fine-grained ATCs into higher level ATC
- Taxonomy
 - > Flat
 - > Choreographed
 - > Nested



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BTF Concepts – ATC (cont.)

> Business ATC

- Agreements between parties engaged in a business transaction constrain possible transactions
- Based on Unconventional Atomicity Criteria, Example: Delivery time

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 - ACBT
 - CBT
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BTF Concepts - ACBT

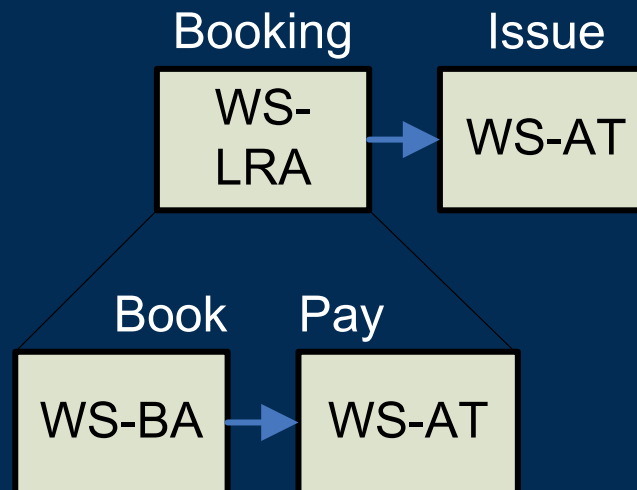
- Abstract Composite Business Transactions (ACBT)
 - > Composition Phase Concept
 - > Composition of ATCs representing a structural transaction specification for a business process with business transactions.
 - > This *Blue Print* has the following inputs:
 - A Business Process Specification
 - ATCs & ATC Composition Rules
 - Contractual Requirements

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BTF Concepts – ACBT (cont.)

> Benefits of this approach:

- Multiple ACBT for one Business Process depending on requirements and contractual agreements
- Reusability of ACBTs for different processes as kind of reference models



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BTF Concepts - CBT

- Composite Business Transactions (CBT)
 - > Execution Phase Concept
 - > Events (e.g., an order) trigger execution of ACBT instance, i.e., the process & execution of transactions starts
 - > Execution behavior of ACBTs is parameterizable at run-time in order to create CBTs
 - > ATCs in the ACBT are instantiated and become concrete transactions denoted as Transactional Constructs (TC)

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Future Work

- Work in Progress
 - > Further ATC Conceptualization
 - > Initial ATC/BTF Formalization
 - Selection of suitable formalization language
- Future Work
 - > ATC Composition Rules
 - > Specification of Correctness Criteria for ATCs, possibly contract driven based upon business requirements
 - > Orchestration Oriented to Choreography Oriented
 - > Construction of Prototype

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- ✓ Future Work
- Summary
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- The BTF provides transaction support for business processes with business transactions that require an automated and consistent execution with clear semantics (in case of errors) in service oriented environments
- Platform-independent way of integrating required transaction models
- Accommodate the various activities and their resources (databases, workflows, web services) throughout the business process into a cohesive whole
- Flexible creation of reusable transaction plans to support business processes

Questions & Discussion

Thank you for listening

Now it is time for
questions and discussion

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