

Towards a Transaction Framework for Contract-Driven, Service-Oriented Business Processes

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Introduction

- XTC (eXcution of Transactional Contracted electronic services) Project

“Provide a generic foundation for support of complex transactional services in contract-driven inter-organizational business interactions that rely on dynamically composed web services.”
- My PhD research
 - ~ **Co-task**: Develop a Business Transaction Framework (BTF) for contract-driven, service-oriented business processes spanning organizational boundaries
 - ~ **Individual task**: Contractual specification of transactional qualities of those business processes

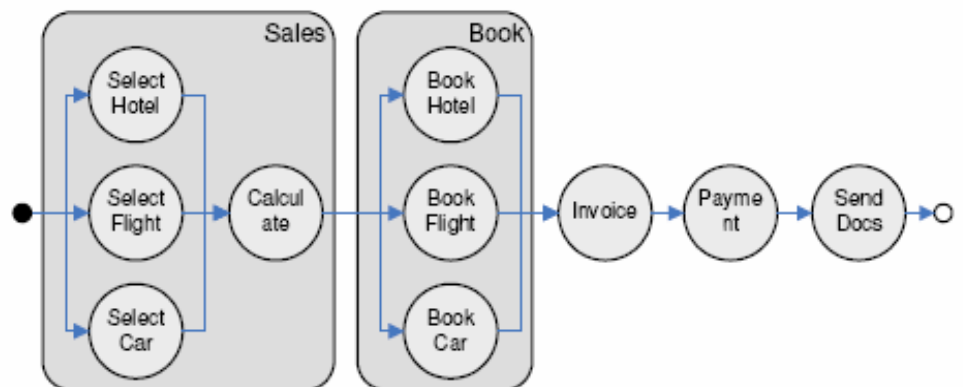
Towards a Transaction Framework for Contract-Driven, Service-Oriented Business Processes

Introduction

- Example – A travel booking process

Assumption:

Each activity is wrapped as a service.



- Transaction support for this process

What if a customer cancels the booking?

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Research background

- Challenges from business side
 - ~ Processes become complex and time-consuming
 - ~ Processes are composed dynamically
 - ~ A lot of business relationships need to be regulated
- Opportunities from technology side
 - ~ Transaction management for long-living and complex processes
 - ~ Service-Oriented Architecture (SOA) and Web services
 - ~ E-contracting

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Research background

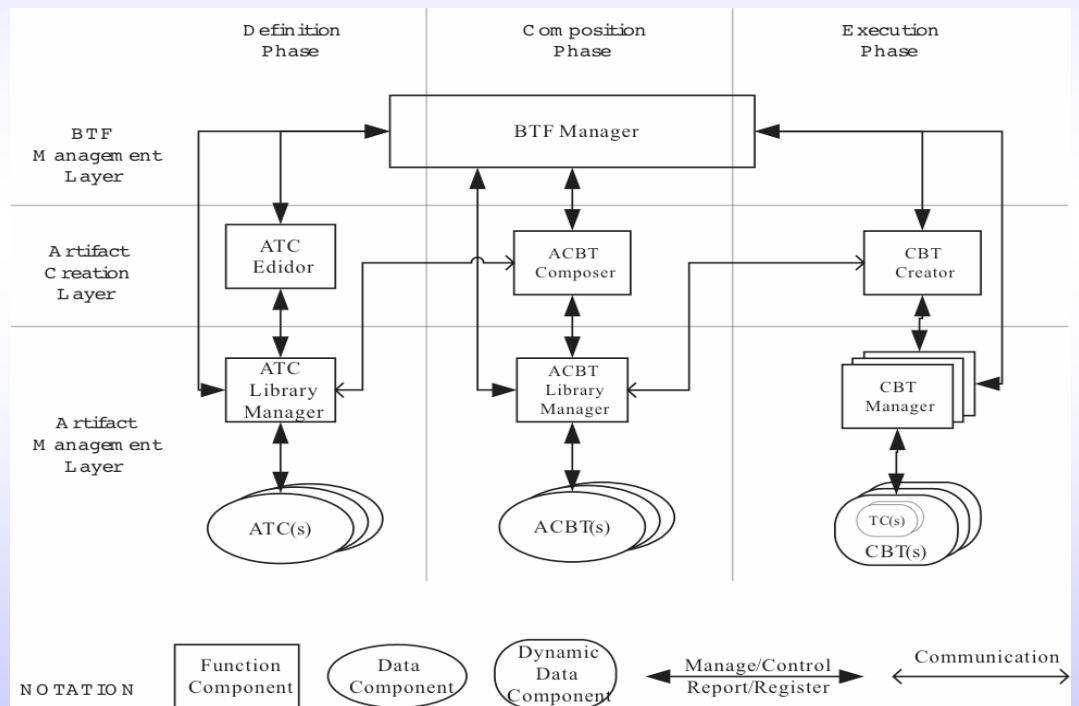
- Related work
 1. Transaction management
 - ACID transaction → Advanced Transaction Model → Workflow transaction → Web services transaction
 2. E-contracting
 - ~ E-contracting languages
 - ~ Web Service Level Agreement (WSLA) project
 3. Web services composition
 - ~ Web services Quality of Service (QoS)
 - ~ Contractual support for Web services

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Business Transaction Framework (BTF)

Terminology:

- ~ BTF
- ~ ATC
- ~ ACBT
- ~ CBT
- ~ TC



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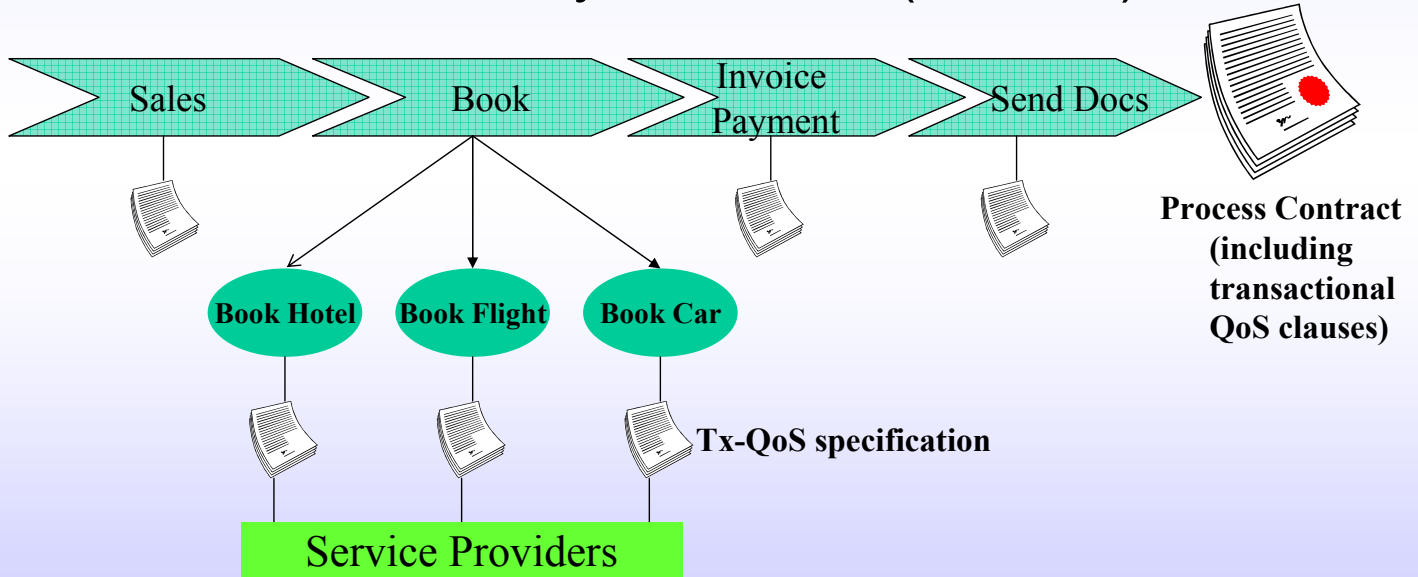
Contractual support for the BTF

- Contract-driven business processes
 - ~ Involve miscellaneous activities and partners
 - ~ E-contracts specify the agreed terms between service providers and consumers
 - ~ E-contracts guarantee the business trustworthiness
- Transactional QoS specification
 - ~ Measurable qualities for a (sub-)transaction
 - ~ Subset of Web services composition QoS
 - ~ A specification language

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Contractual support for the BTF

- Transactional Quality of Service (Tx-QoS)



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Summary and future work

- Refine the BTF/ATC specification
 - ~ Parameterization of the ATCs
 - ~ Composition rules for the ATCs
- Refine the BTF architecture
 - ~ Decomposition of the function components
 - ~ Architectural overview in different levels of detail
 - ~ Requirement from cross-organizational processes
- Develop a Tx-QoS language
 - ~ Investigation of existing candidate languages
 - ~ Clear description of QoS for transactions

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Questions?

