BizTalk Orchestration

Marius Rochon
Microsoft Corp.
Agenda

- **A Biztalk Application**
  - Requirements - Integration, Collaboration, Process Automation
  - Representing Business Process Creating Executable process
  - Build and Run our first BPO application

- **Biztalk Orchestration Features**
  - Concurrency, Transactions, Dynamic Flow...
Business Process Summary
Workflow and Collaboration

- Customer
- Order Mgmt
- Financials
- Warehousing
- Inspector
- Shipping

Key Steps:
- Order
- Order Ack
- Credit Check
- Allocate Req
- Ship Confirmation
- Charge
- ETA
- Goods
- Inspect
- OK
Representing Business Process

- Joe
- Mary
- Pat
- Sue
- Andy
- Junk

Order: Joe -> Sue -> Andy

 Somebody in Accounts?

- Money
- Order
- Delivery
- Receipt
Representing Business Process
But we want to....

- *Execute* our Business Process
- Be able to change the Business Process without changing code
- Be able to attach and detach our Business Process to and from Implementation
- So we need a more rigorous expression of our business process.....
BizTalk Application Designer

- Visual design and build executable business processes.
- Brings together business analyst and developer in common design environment.
- Separates process definition from the underlying implementation
Simple Example

Customer

Order

Order Mgmt

Order Ack
Modeling the Process

Action
- Place Order
  - Send Ack
    - Message
      - Order Req
        - Port
          - Order Ack
Demo: Build a simple application
BizTalk Orchestration

- Technology Features
  - Separation of Definition and Implementation
  - Concurrency and Synchronization
  - Long Running Transactions
  - Dynamic Ports
  - Composability
  - Management and Monitoring
  - Process definition language - XLANG
Separation of Definition and Implementation

- Process MUST be separate
  - Process shouldn’t dictate hardware/software and vice versa
  - Easier to modify and maintain processes
  - Processes scale more easily
  - Business analysts focus on process
  - Developers focus on software
Separation of Definition and Implementation
BizTalk Orchestration

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Concurrenty and Synchronization

- Concurrency is a business reality but difficult to implement in practice.
- Asynchronous environment poses correlation challenges
  - Many processes/many messages
- BizTalk Orchestration handles the complexity for the user
Concurrency and Synchronization
BizTalk Orchestration

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Long Running Transactions
Long Running Transactions

- Transactions are difficult in loosely coupled environments involving many participants
- ACID vs. Long Running
- Compensating Processes
  - Predictability
  - Reliability
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Dynamic Ports

- Don’t know who the participants are until the process is executed.
- Unique participants for every instance of a process
- Design Time = Shipper
- Run Time = Federal Express
BizTalk Orchestration

Technology Features

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- Composability
- Management and Monitoring
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Composability

- “Schedules” can be built out of other schedules
- Allows for the distribution of the application across functional boundaries
- Divisional Schedules can be composed of group schedules etc.
- Schedules can be composed across companies.
Composability

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Diagram:

- Customer
- Supplier

- Connections between Customer and Supplier
- Data flow representation
Composability

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Management and Monitoring

- Persist state in XML
- Store state information in SQL Server
- Complete Instrumentation
  - Event Architecture
- Query able data
- Dehydration/Rehydration
BizTalk Orchestration

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  - XLANG - Process definition language
XLANG("exlang")

- Language for describing processes
- Persisted in XML
- Rigorous mathematical foundation
- Generated by BizTalk Application Designer
- Executed by BizTalk Orchestration Engine
Summary

BizTalk Application Designer

<XMLANG>
Process
</XMLANG>

BizTalk Orchestration Engine

BizTalk Transform/Routing Engine

COM

MSMQ

Web Service

BizTalk Doc Editor
BizTalk Mapper
BizTalk Mgmt Desk
BizTalk Admin Console

B2B Trading Partners

Web Service

Programmatic Access
Key Takeaways

- **BizTalk Orchestration:**
  - Separates the process definition from the underlying software.
  - Creates executable business processes.
  - Addresses the challenges of building distributed business processes.
  - Concurrency and Synchronization
  - Long Running Transactions
  - Composability
  - Uses BizTalk Messaging to integrate with applications and businesses.
Questions?