JBoss jBPM

Workflow made practical

Presented by
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Speaker

- Tom Baeyens
  - ✓ founder and project lead for JBoss jBPM
  - ✓ member of the expert groups
    - JSR207 'Process Definition for Java'
    - JSR208 'Java Business Integration'

Agenda

- What is workflow
- Graph oriented programming
- The jBAY Auction Process
- Other responsibilities

What is Workflow

- Traditional view
  - ✓ process language is a set of constructs
  - ✓ with a runtime environment
- Business analyst
  - ✓ must model in the process language
- Cracks
  - ✓ abundance of process languages
  - ✓ no convergence in process languages

What is Workflow

Workflow provides the means
to structure your software
around a graph

Graph oriented programming

- What is GOP
  in 3 steps

  1. declare the graph
  2. code in the nodes
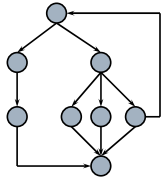 3. support for state

Graph oriented programming

1. Declare the graph
   - graph declaration, separated from the code
   - nodes
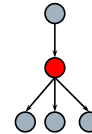   - transitions

Graph oriented programming

2. Code in the nodes
   - ✓ each node is associated with a piece of code
     - business code
     - graph execution propagation

Graph oriented programming

3. Support for state
   - ✓ it's a new concept
   - ✓ it's a different scope
     - server side programming:
       1 request ≈ 1 transaction
     - workflow:
       many related requests/transactions
   - ✓ it's the time between transitions

Graph oriented programming

- What have we gained ?
  - ✓ the concept of state
  - ✓ we can express the relation between transactions
  - ✓ we can link the implementation to the business requirements
    - graph is the projected view
    - business analyst and techie talk the same language

Graph oriented programming

GOP provides the means
to structure your software
around a graph

Graph oriented programming

- GOP is a technique to structure software

- just like…
  - ✓ Object Oriented Programming (OOP)
    - centralizes methods around data
  - ✓ Aspect Oriented Programming (AOP)
    - centralizes crosscutting concerns

Graph oriented programming

- A graph is not always the right choice
  - ✓ java can be expressed as a graph
  - ✓ nobody writes java programs graphically
- For business processes and workflow
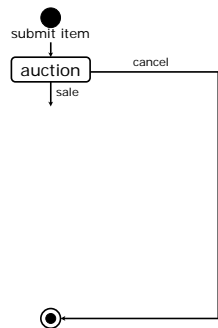 - ✓ a graph is often the right choice

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The jBAY Auction Process

- Users can submit items for auction
  - ✓ duration
  - ✓ reserve price
- When auction finishes
  - ✓ a sale happens if minimal price is met
  - ✓ otherwise the auction is cancelled
- After a sale
  - ✓ seller sends item, then buyer receives
  - ✓ buyer pays, then seller gets paid
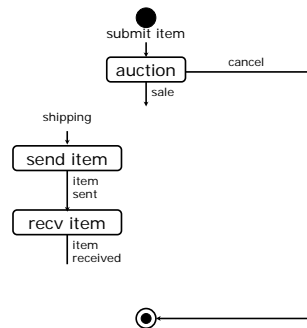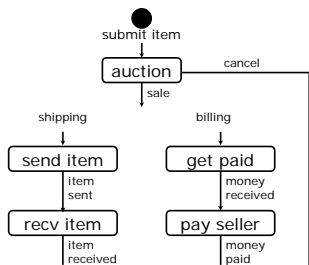- Payment and shipping done in parallel

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The jBAY Auction Process

submit item

auction — cancel

sale

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The jBAY Auction Process

submit item

auction — cancel

sale

shipping

send item

item sent

recv item

item received

16

The jBAY Auction Process

submit item

auction — cancel

sale

shipping | billing

send item | get paid

item sent | money received

recv item | pay seller

item received | money paid

17

The jBAY Auction Process

submit item

auction — cancel

sale

shipping | billing

send item | get paid

item sent | money received

recv item | pay seller

item received | money paid

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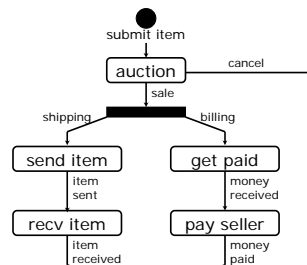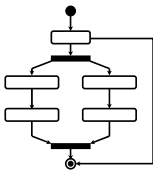## Authoring The Process


```xml
<process-definition name="jbay">

  <start-state name="submit item">
    <transition to="aution" />
  </start-state>

  <state name="auction">
    <transition to="fork" />
  </state>

  <fork name="fork">
    <transition to="send item" />
    <transition to="get paid" />
  </fork>

  ...
```
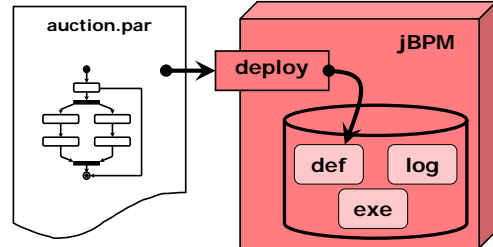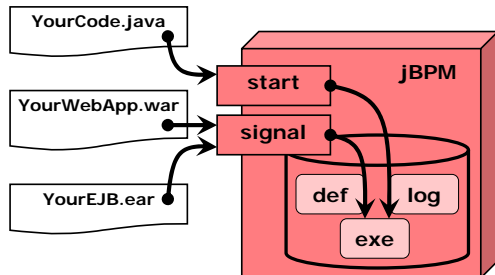
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Deploying The Process

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Process Executions

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Workflow Landscape

- Market
  - ✓ completely *fragmented*
  - ✓ different focus, different concepts
- Academic research
  - ✓ petri nets
  - ✓ workflow patterns
- Standardization
  - ✓ too early & also fragmentated
  - ✓ WS-BPEL/BPELJ/JSR207, XPDL, OMG's WMF, BPMI's BPML & BPMN, ...

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The Focus of jBPM

- A powerful and simple core engine
  - ✓ **white box** solution
  - ✓ bottom up
  - ✓ natural combination of declarative model and java
- Deployment freedom
  - ✓ from an ant-task (=script)
  - ✓ till a clustered j2ee-application
- Easy programming model
  - ✓ up and running in less then half a day

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The Focus of jBPM

- jBPM does **not** have unnecessary dependencies
  - ✓ jBPM does not require web services
  - ✓ jBPM does not require ejb-container
  - ✓ jBPM does not require message queues

- jBPM can handle all of the above if you need it

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The Focus of jBPM

- TDD for workflow
  - ✓ plain JUnit
  - ✓ one test is one scenario
  - ✓ the test contains the external triggers

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Other Perspectives

- The graph is mainly about state
- Other perspectives
  - ✓ process variables
    - is the context of the process
    - data items
    - references to e.g. records, file-names, …
  - ✓ tasks
    - personal task lists
    - groups
  - ✓ action- and nodehandlers
    - integrating code into the process

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Q&A

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