Flexible business processes using jBPM5

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Key Characteristics of BPM

A business process is a process that describes the order in which a series of steps need to be executed, using a flow chart.

- Visibility
- Monitoring
- Higher-level

- Continuous improvement
- Speed of development
- Increased agility
BPM Approaches

- System / EAI Oriented
- Human Centric
- Event Driven
- Case Management
- Decision Centric
- Content Driven
- Social
- Model Oriented
Key Characteristics of jBPM5

- Open-source business process management project offering:
  - generic process engine supporting native BPMN 2.0 execution
  - targeting developers and business users
  - collaboration, management and monitoring using web-based consoles
  - powerful rules and event integration
From Workflow to BPM

Core Engine

- Persistence
- Transactions
- Events
- Integration
- XML
- BPMN 2.0

Integration
Ready for the future?

Traditional systems have problems with change, complexity, flexibility, data-intensive applications, etc.

- Adaptive Case Management (ACM)
- Unstructured, non-linear or flexible processes
- Event-driven BPM (edBPM)
What is flexibility?

“The quality of being adaptable or variable”
What is business process flexibility?

“The ability to implement change or variability in a business process, due to environmental changes”
Flexibility = Variability + Change
Process Variability

- By design
- By deviation
- By underspecification
- By change

[2008] Towards a Taxonomy of Process Flexibility
M.H. Schonenberg, R.S. Mans, N.C. Russell, N.A. Mulyar and W.M.P. van der Aalst
Process Change

• **Subject of change**
  – What is changing?

• **Abstraction level of change**
  – Process definition
  – Process instance

• **Extend of change**
  – Incremental
  – Revolutionary
Process Change

• Duration of change
  – Temporary
  – Permanent

• Swiftness of change
  – Deferred
  – Immediate

• Anticipation of change
  – Planned
  – Ad hoc

[2006] Taxonomy of flexibility in business processes
  Gil Regev, Pnina Soffer, Rainer Schmidt
Flexibility in jBPM5

• Dynamically load process definitions
• Existing process instances?
  – Proceed
  – Process instance migration
• Ad-hoc (sub-)processes
  – Non-lineair process fragments
  – Dynamic adaptations
Example: Clinical DSS
Processes + Rules + Events
Vision

jBPM as the process engine in a knowledge-oriented platform for developers and business users
Combining Processes, Rules and Events

• Integration
  – From loose coupling
  – To advanced integration

• Unification
  – Processes and (event) rules are different types of business knowledge assets
  – Tooling (IDE, repository, management)
Life Cycle

Analyze
- Mining
- Optimization
- Analysis

Model
- Design
- Simulation
- Testing

Deploy
- Integration
- Collaboration
- Deployment

Monitor
- Monitoring
- Reporting

Execute
- Audit
- Management
- Human Interaction
- Execution
Decision Service

- Different life cycle (agility)
- Larger scope (reusable)
- Higher-level
- Loosely-coupled

```
rule "High Risk if age < 21"
  ruleflow-group "RiskAssessment"
  when
    Person( age < 21 )
  then
    insert ( new RiskFactor( 0.1, "Person is less than 21." ) );
end
```
Rules and Process Integration

- RuleSet: Evaluating a set of rules in your process (= local decision service)
- Process Rules: Data-driven constraints
- Triggers: Rules / events start / signal process
- Assignment rules
- Describing exceptional situations using rules
- Modularizing concerns using rules
- Using rules to dynamically alter the behavior of the process
Exceptional Control Flow

90%

- Split
  - Task
  - Wait
  - Split
    - Human Task
    - Human Task

5%

- Task
  - End

3%

- Task
  - Task
  - End

2%

- Fault
Exceptional Control Flow

90%

Rule 1
When ...
Then ...
5%

Rule 2
When ...
Then ...
3%

Rule 3
When ...
Then ...
2%
Example: Build Management

Hudson Execution and Scheduling Architecture
Example: Build Management

Hudson Execution and Scheduling Architecture
Processes + Rules + Events
jBPM5: What, where?

- jBPM home page
- Source http://github.com/droolsjbpm/jbpm
- Hudson http://hudson.jboss.org/hudson/job/jBPM
- Blog http://kverlaen.blogspot.com/
- #jbpm on irc.codehaus.org
- jbpmd-dev@jboss.org
- jBPM user forum
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