

JUDCon

JBoss Users & Developers Conference

London:2011

BPM using jBPM5 and Beyond

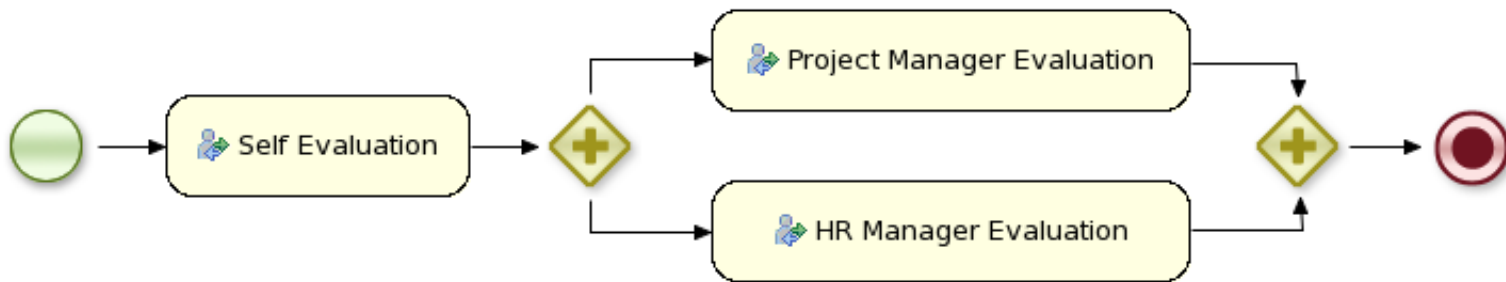
Kris Verlaenen – jBPM Lead
October, 2011

Overview

- What is BPM?
- Getting started with jBPM5
- From Workflow to BPM
- Extra features
- Social, Cloud and Mobile
- Roadmap

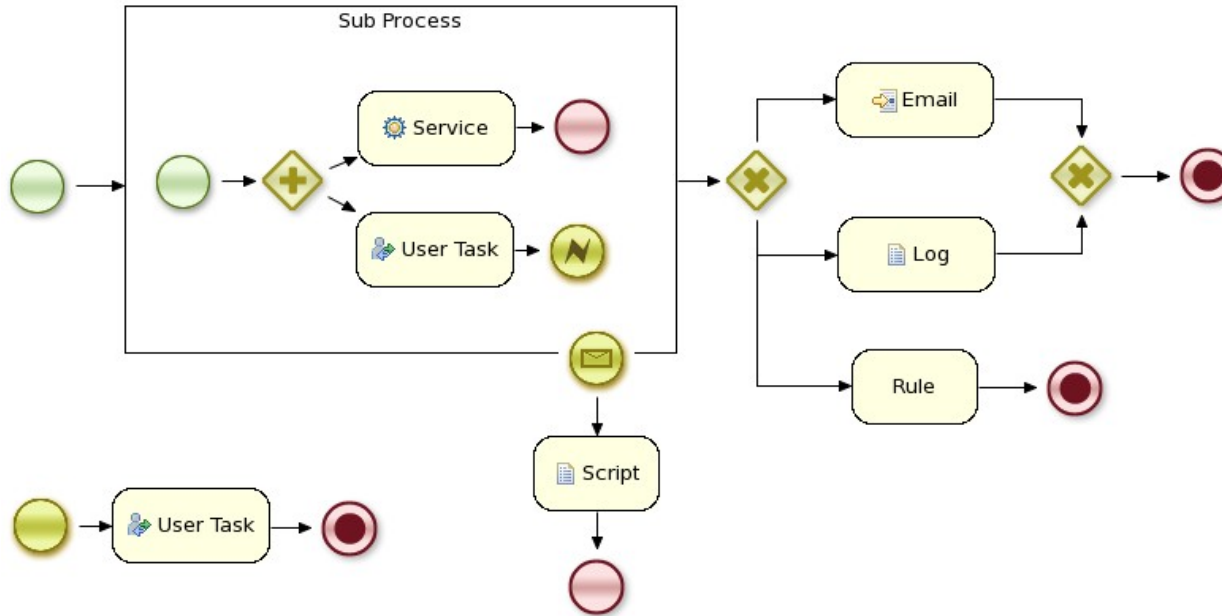
What is BPM?

Business Process Management



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

Why BPM?

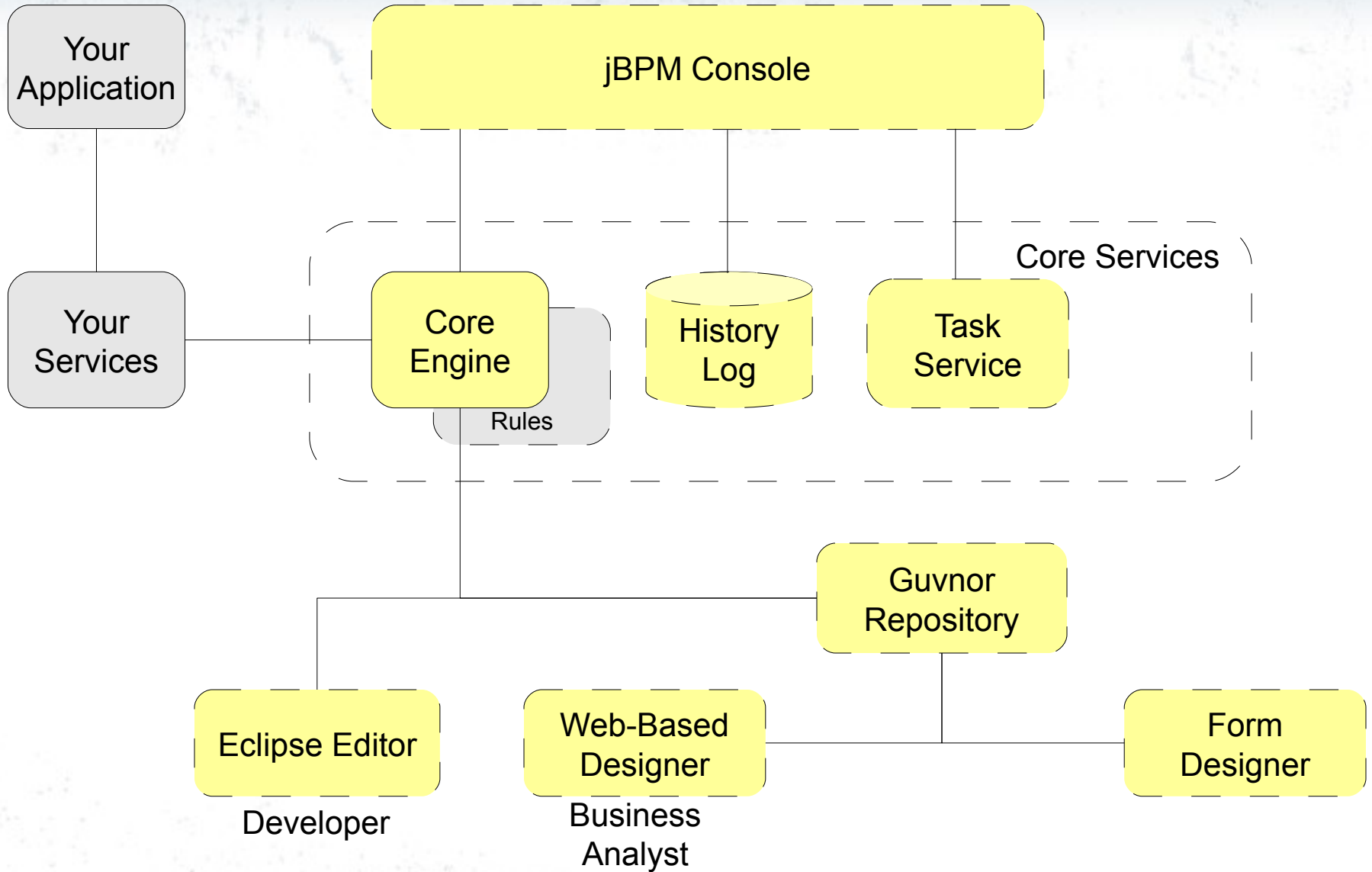


- Visibility
- Monitoring
- Higher-level
- Continuous improvement
- Speed of development
- Increased agility

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

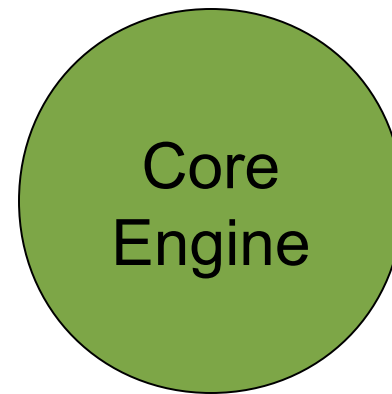
End User



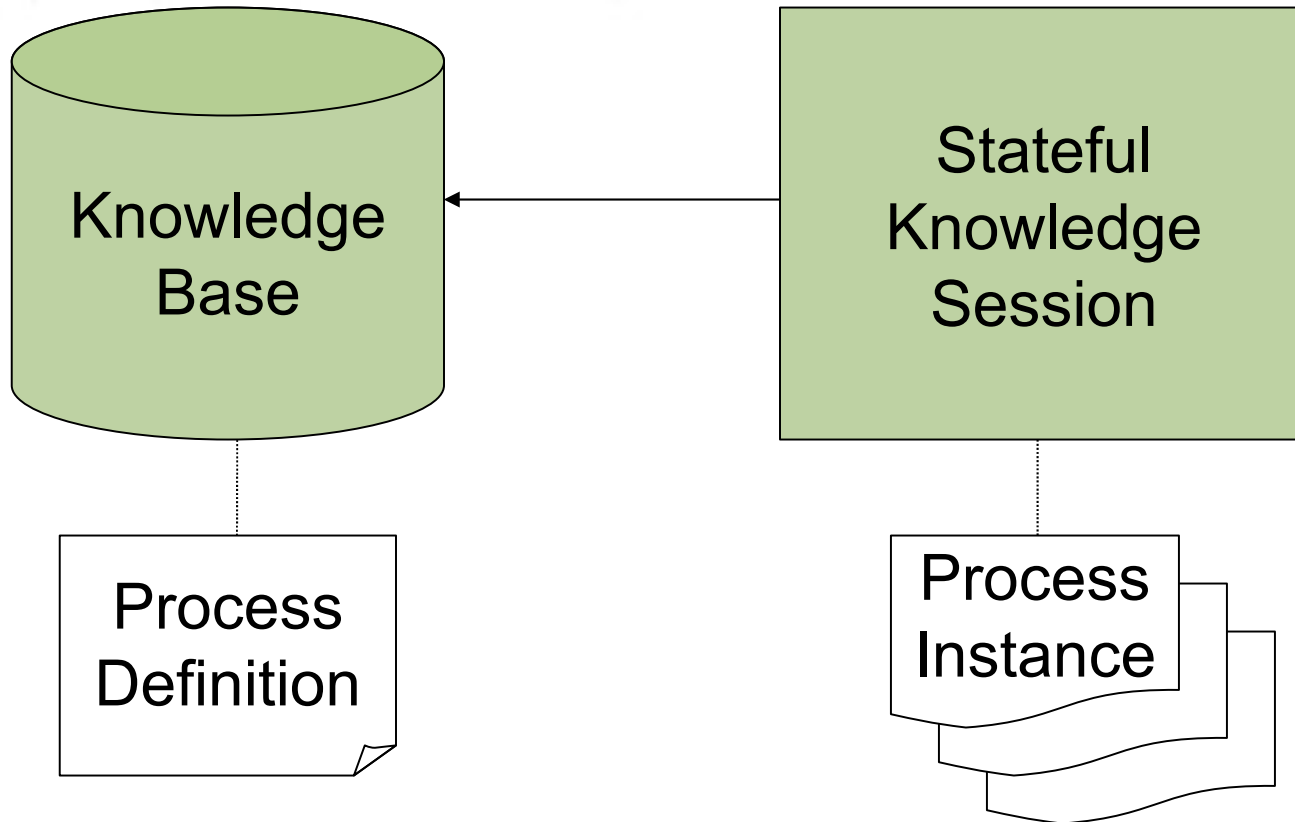
Getting started with jBPM5 !

Core Engine

- Core engine is a workflow engine in pure Java
 - state transitions
 - lightweight
 - embeddable
 - generic, extensible



Core Engine



BPMN 2.0



```
<definitions ... >
```

```
<process id="com.sample.bpmn.hello" name="Hello World" >
```

```
<startEvent id="_1" name="StartProcess" />
```

```
<sequenceFlow sourceRef="_1" targetRef="_2" />
```

```
<scriptTask id="_2" name="Hello" >
```

```
<script>System.out.println("Hello World");</script>
```

```
</scriptTask>
```

```
<sequenceFlow sourceRef="_2" targetRef="_3" />
```

```
<endEvent id="_3" name="EndProcess" />
```

```
</process>
```

```
</definitions>
```

Java Interface

ProcessRuntime interface

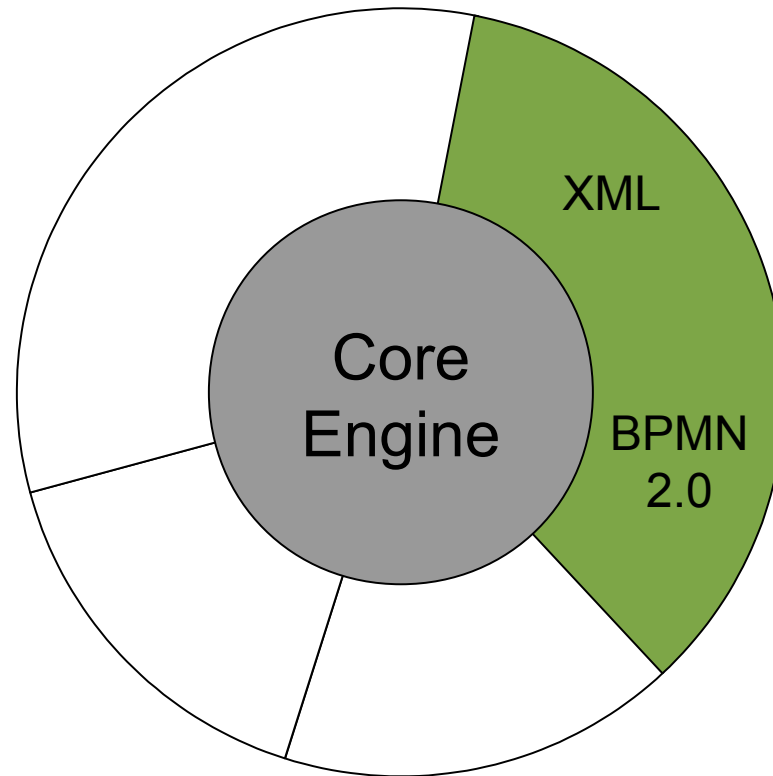
- `startProcess(processId)`
- `startProcess(processId, parameters)`
- `signalEvent(type, event)`
- `signalEvent(type, event, instanceId)`
- `abortProcessInstance(instanceId)`
- `getProcessInstance(instanceId)`
- ...

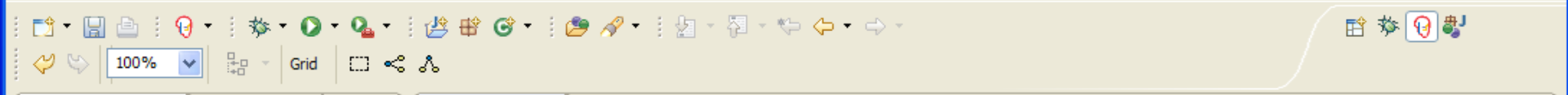
Java Example

```
// (1) Create knowledge base and add process definition  
KnowledgeBuilder kbuilder = ...  
kbuilder.add( ..., "sample.bpmn", ResourceType.BPMN2);  
KnowledgeBase kbase = kbuilder.newKnowledgeBase();  
// (2) Create new stateful knowledge session  
StatefulKnowledgeSession ksession =  
    kbase.newStatefulKnowledgeSession();  
// (3) Start a new process instance  
ksession.startProcess("com.sample.bpmn.hello");
```

From Workflow to BPM

From Workflow to BPM



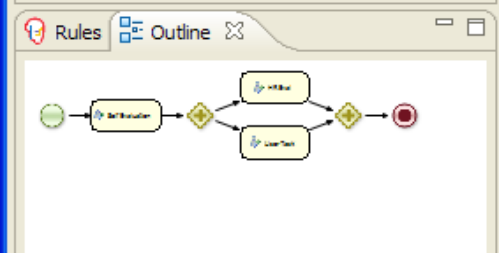
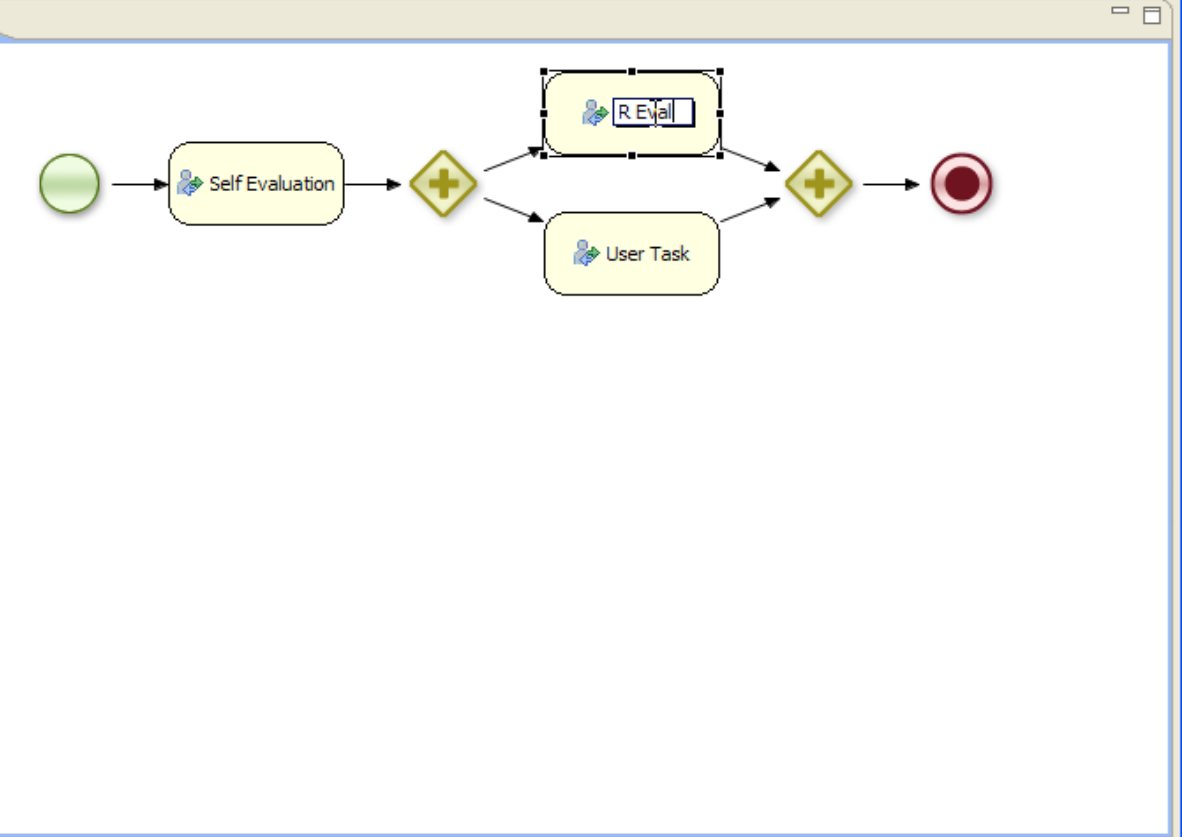


Package Explorer

- Evaluation
 - src/main/java
 - com.sample
 - ProcessTest.java
 - src/main/rules
 - sample.bpmn
 - JRE System Library [jdk1.5.0_16]
 - Drools Library
 - src
 - test.log

sample.bpmn

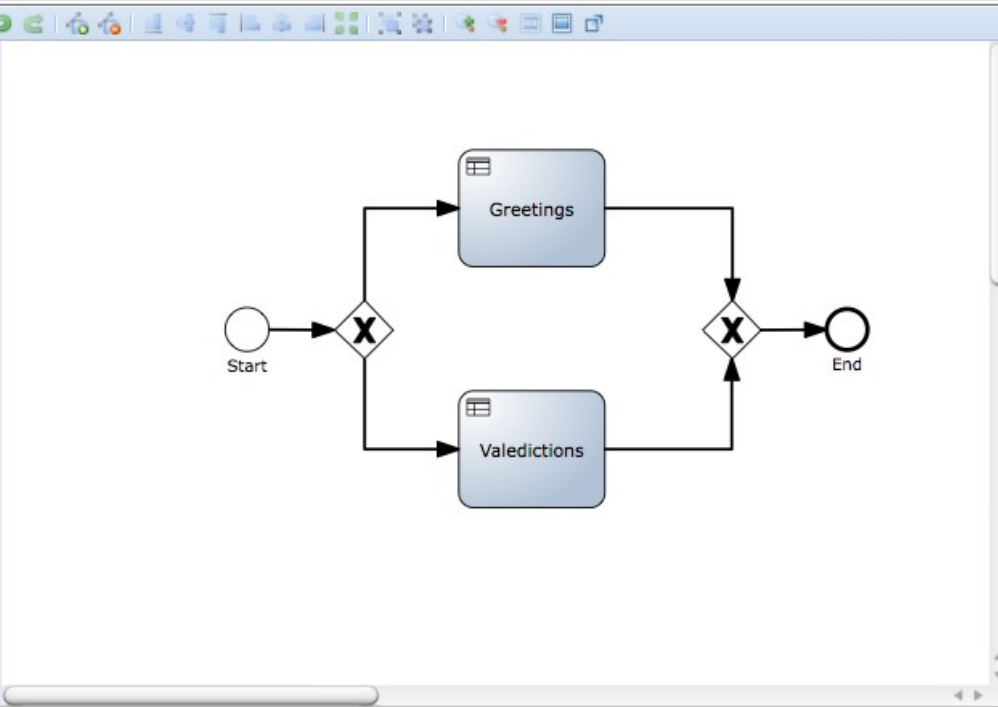
- Select
- Marquee
- Sequence Flow
- Components
 - Gateway [diverge]
 - Gateway [converge]
 - Wait Task
 - Reusable Sub-Process
 - Script Task
 - Timer Event
 - Error Event
 - Message Event
 - User Task
 - Embedded Sub-Process
- Service Tasks
 - Email
 - Log



Property	Value
ActorId	
Comment	
Content	
Id	6
Name	User Task
On Entry Actions	
On Exit Actions	
Parameter Mapping	

Shape Repository

- jbPM BPMN2
 - Activities
 - Task
 - Collapsed Subprocess
 - Expanded Subprocess
 - Collapsed Event-Subprocess
 - Event-Subprocess
 - Artifacts
 - Catching Intermediate Events
 - Connecting Objects
 - Data Objects
 - End Events
 - Gateways
 - Start Events
 - Start Event
 - Start Message Event



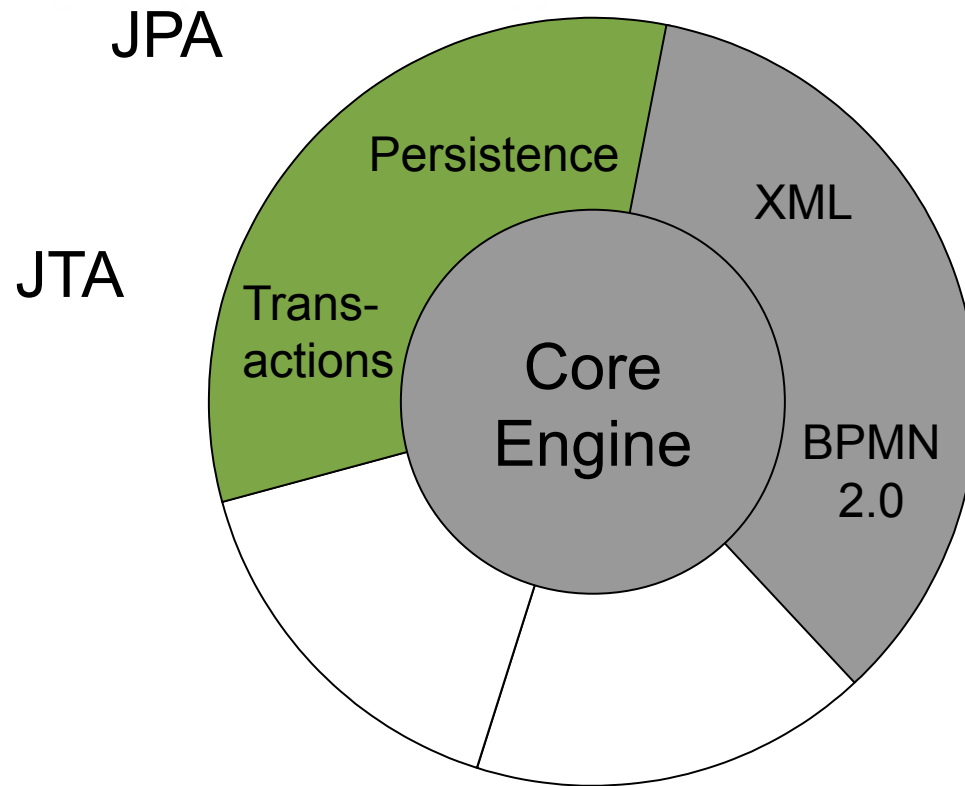
Properties (BPMN-Diagram)

Name	Value
Often used	
Documentation	
Name	Demo2 Process
More Properties	
Author	
CreationDate	
ExpressionLan	http://www.w3.org/
Language	English
ModificationDa	
Namespaces	
Target Namesp	http://www.omg.org
TypeLanguage	http://www.w3.org/
Variable Definit	
Version	1
executable	true
id	demo2process
package	demo2

Title:: [demo2Process]

- +demo2Process
- Other meta data ...
 - Subject:
 - Type:
 - External link:
 - Source:
- +Version history ...

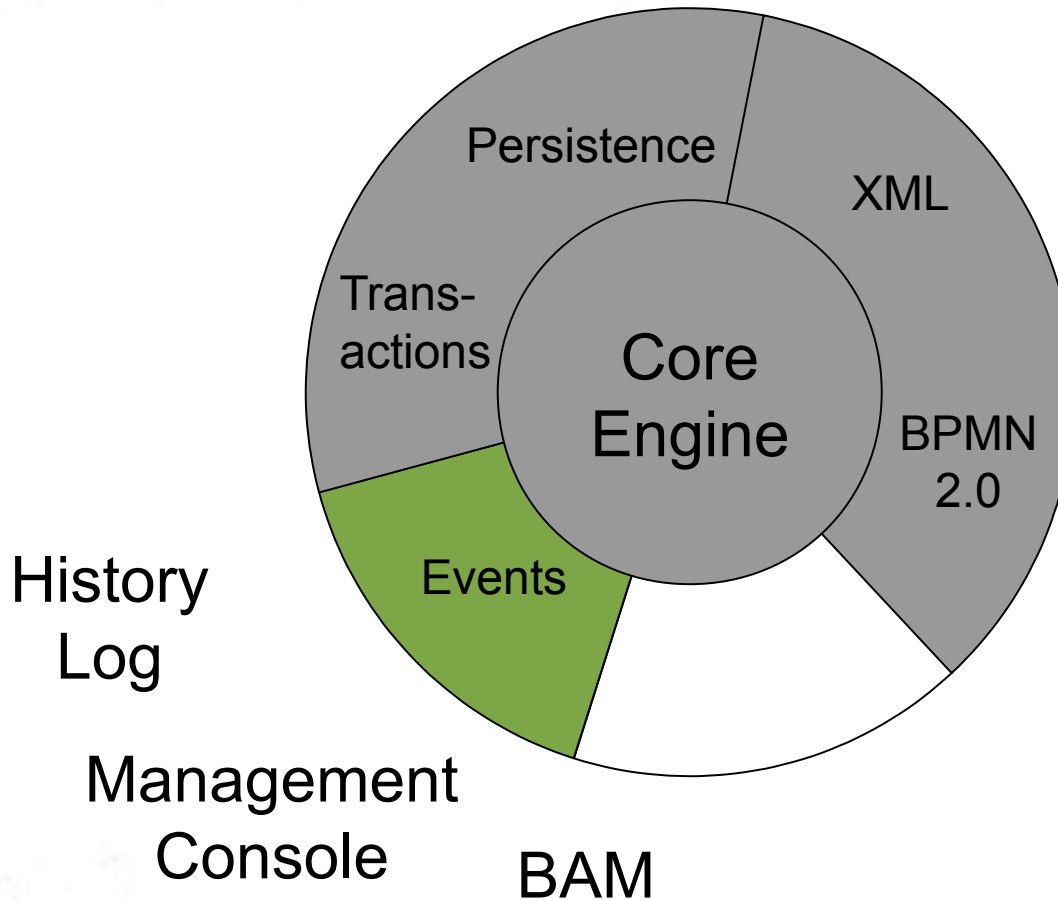
From Workflow to BPM



Persistence and Transactions

- Persistence (JPA, pluggable)
 - Runtime persistence
 - History logging
 - Services
- Transactions (JTA, pluggable)
 - Command-scoped
 - User-defined

From Workflow to BPM



Console

- Web-based management
- Business user
- REST api
- Features
 - Process instance management
 - User task lists / forms
 - Reporting

Tasks

Processes

Process Definitions

Definition List

Process Definitions

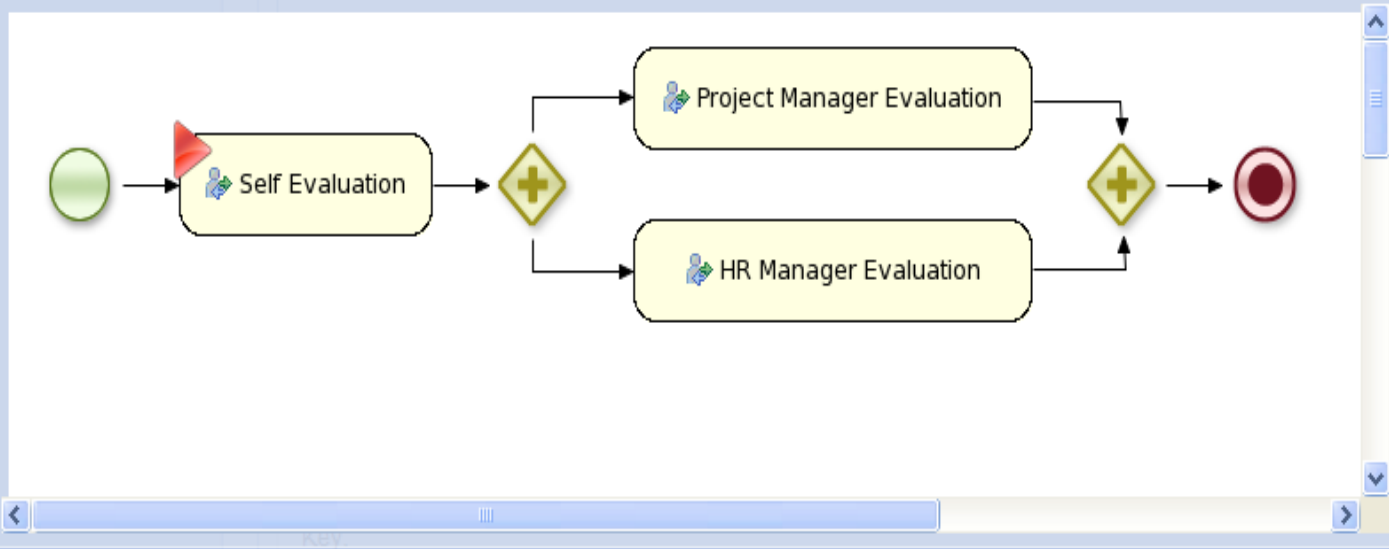
Process Instances

Refresh Start Terminate Delete

Instance ID	State	Start Date
1	RUNNING	2009-09-11 18:23:37

Process Instance Activity

Instance: 1



Diagram

Instance Data

State RUNNING
Start Date: 2009-09-11 18:23:37
Activity:

Reporting




Settings

Messages



Tasks

- Task Management
 - Task Lists**

-  **Processes**
-  **Reporting**
-  **Settings**

Messages

-  **Group Tasks**
-  **Personal Tasks**

[Refresh](#) | [View](#) | [Release](#)

Priority	Process	Task Name	Due Date
0		Performance Evaluation	

Task details

ID: 1
Process:
Name: Performance Evaluation
Assignee: krisv
Description:

Task Interface

Process: , Task: Performance Evaluation

Employee evaluation

As part of your performance evaluation, you have to do a self-assessment.

Please fill in the following evaluation form:

Rate the overall performance:

Outstanding

Check any that apply:

- Displaying initiative
- Thriving on change
- Good communication skills

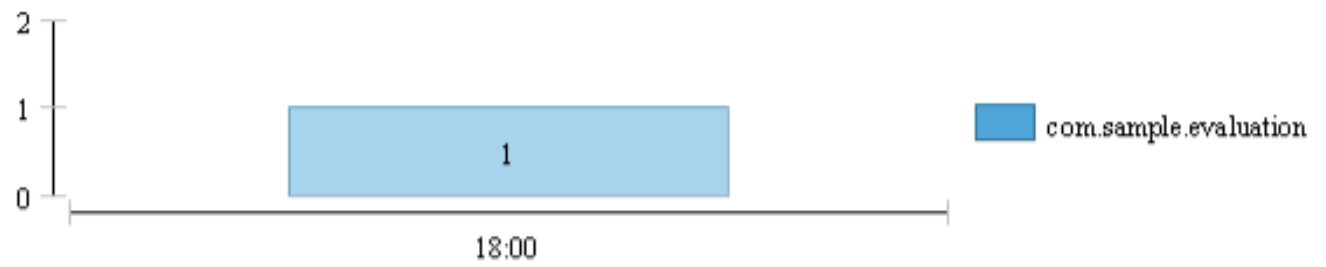
- Tasks
- Processes
- Reporting
 - Available Reports
 - Processes

Process Reports

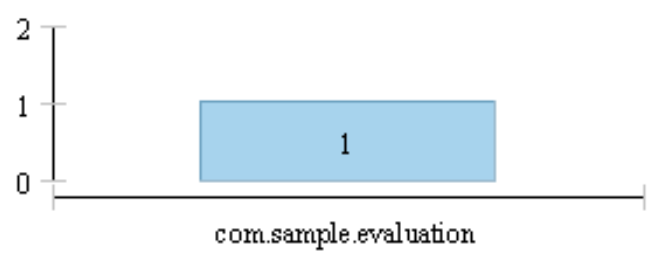
Available Reports ▾

Business Activity Monitoring

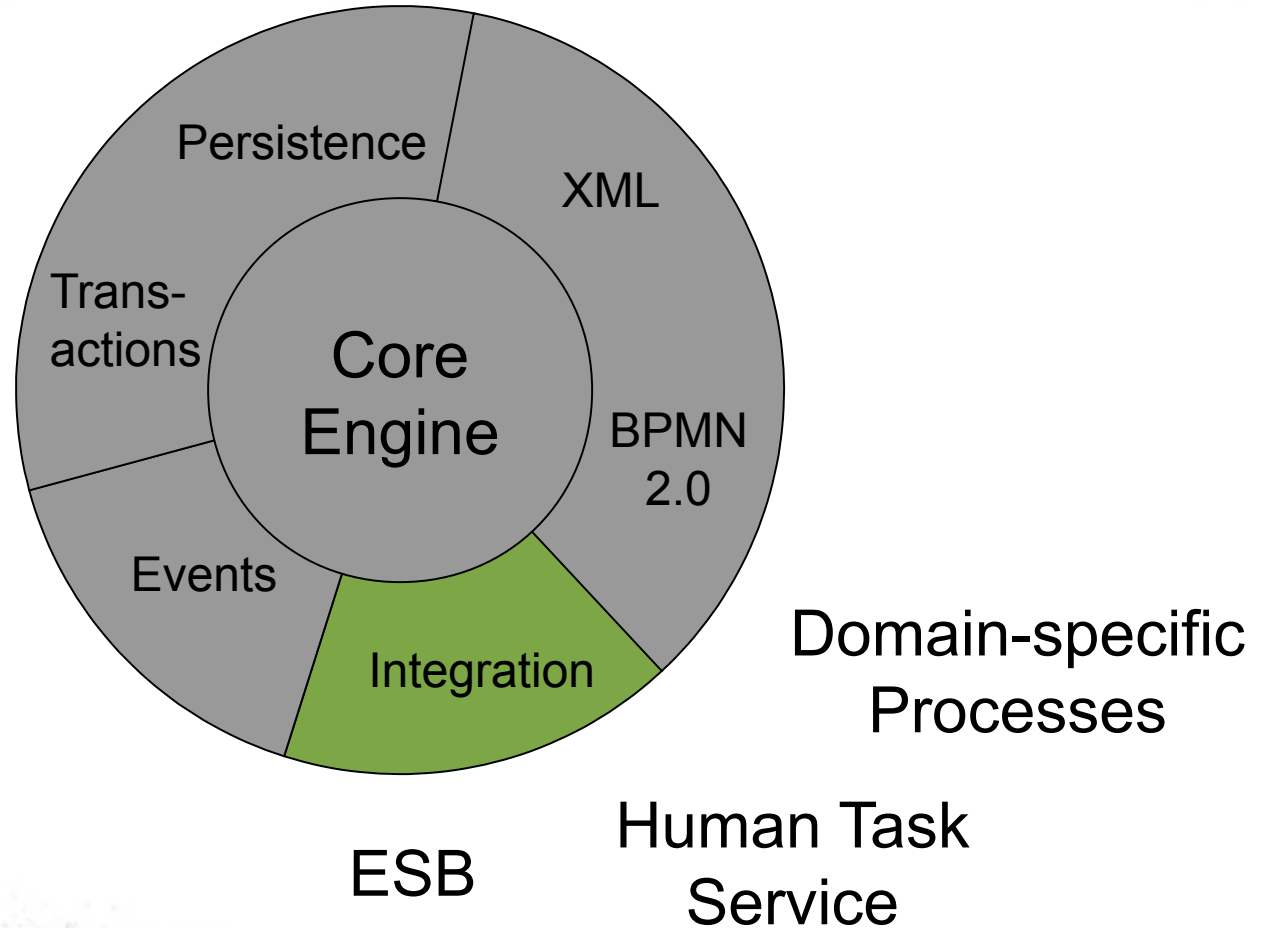
Process Instances / Hour



Currently Active Process Instances

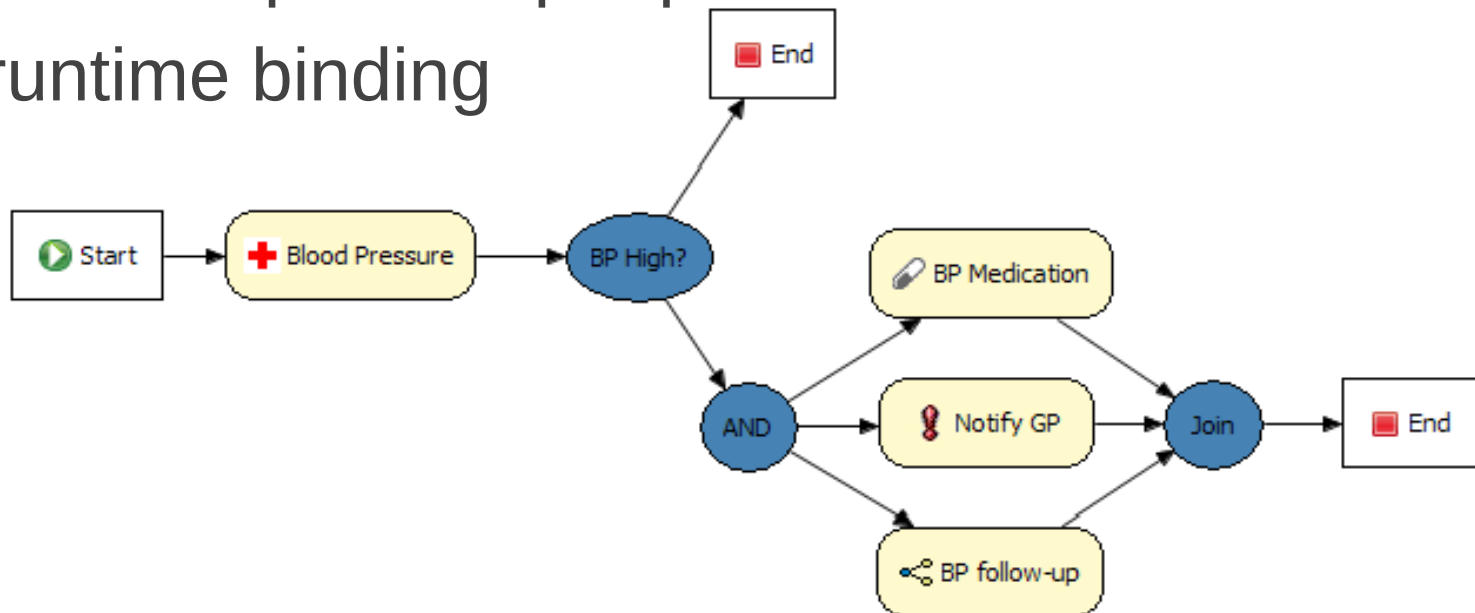


From Workflow to BPM



Domain-specific Processes

- Extend palette with domain-specific, declarative service nodes
 - define input / output parameters
 - runtime binding



Domain-specific Processes

- Why?
 - Domain-specific
 - Declarative
 - High-level
 - Context-defined
- Other examples
 - Human task
 - Java method
 - WS, Rest
 - Email, Twitter
 - FTP, RSS, Jabber
 - Finder, Exec, Archive
 - Google Calendar
 - *YOUR SERVICES !*

Repository !

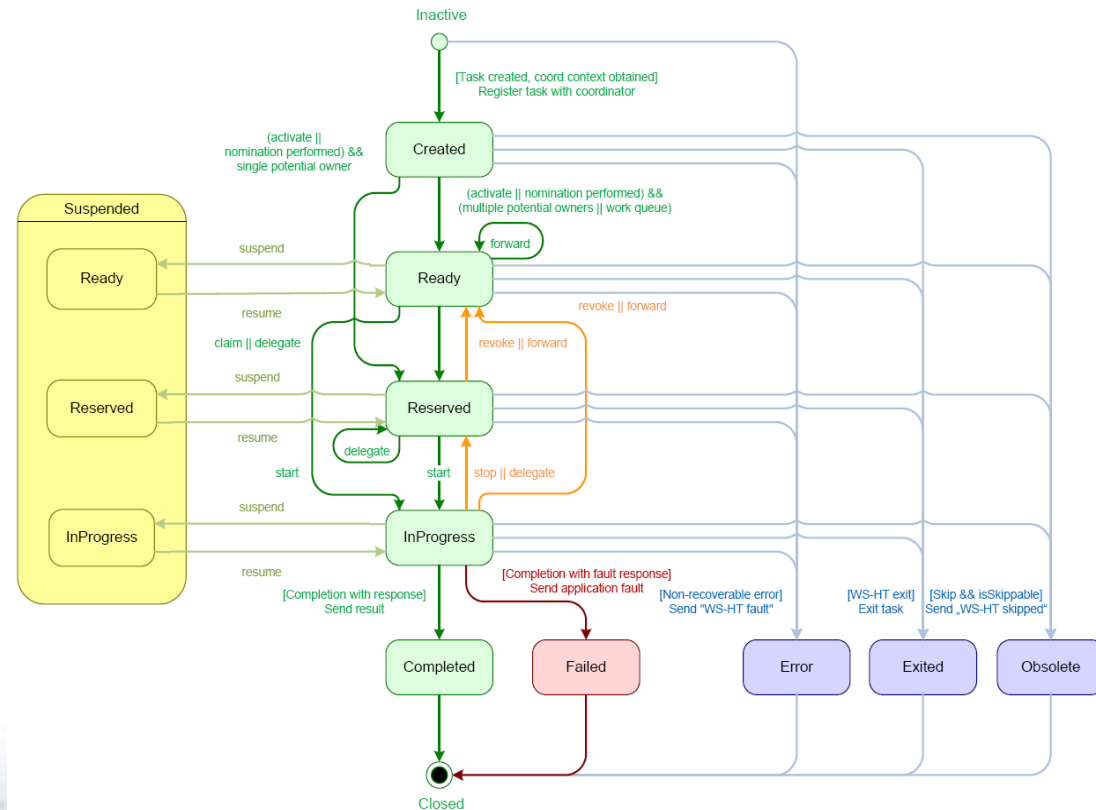
Service Repository

The screenshot displays the Eclipse IDE interface with several windows open:

- Package Explorer:** Shows a project named 'twitter' with sub-packages 'src/main/java' and 'src/main/resources'. Files include 'com.sample', 'ProcessTest.java', and 'sample.bpmn'.
- Import services dialog:** Shows the URL 'F:\jbp-service-repository'. A tree view lists categories like 'Communication' (with sub-items 'Jabber', 'Email', 'Twitter'), 'Data', 'File System', 'Google', 'Java', 'Other', and 'Service'. The 'Twitter' service is selected. Buttons for 'Get' and 'Import' are visible.
- Twitter service details:** A panel for the 'Twitter' service, including a description 'A service for twitter messages, u...', a 'Parameters' section with a 'Message' field containing 'String The messag...', and a 'Results' section.
- sample.bpmn editor:** Shows a workflow diagram with a green start event, a yellow rounded rectangle task labeled 'Twitter', and a red end event, connected by arrows.
- Custom Work Editor dialog:** A dialog box with 'Name: Twitter' and 'Message: #{name} is trying out the #jbp twitter demo!'. It has 'Ok' and 'Cancel' buttons.

Human task service

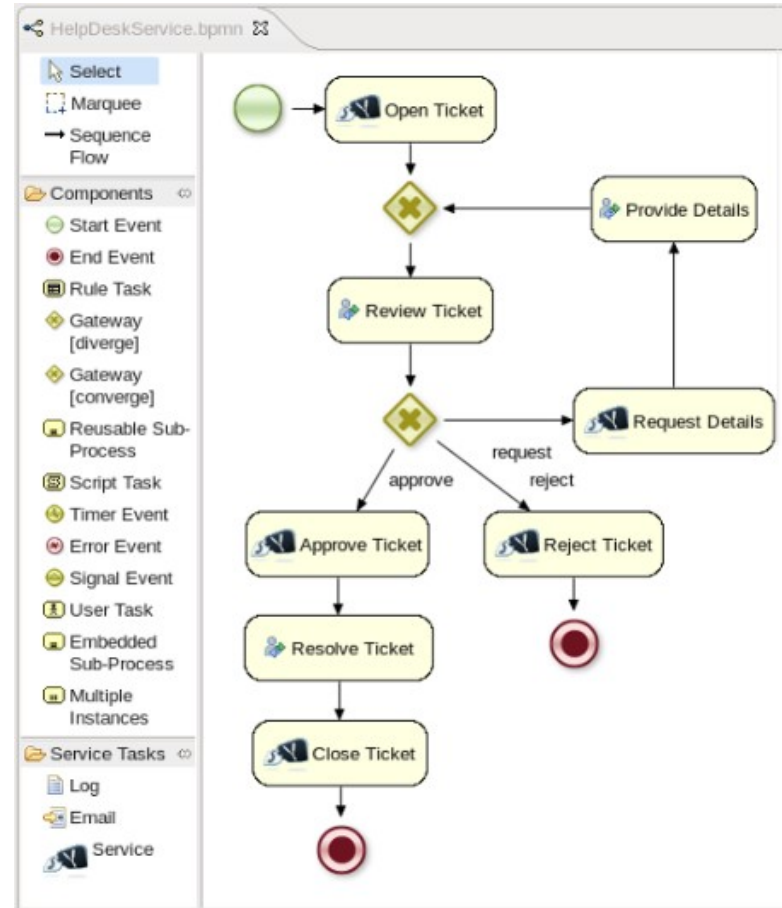
- User task
- Human task service (WS-HT)
 - Task lists
 - Task life cycle
- Task clients
 - Task forms



SwitchYard

Lightweight service delivery framework providing full life cycle support for developing, deploying, and managing service-oriented applications

- SwitchYard BPM component

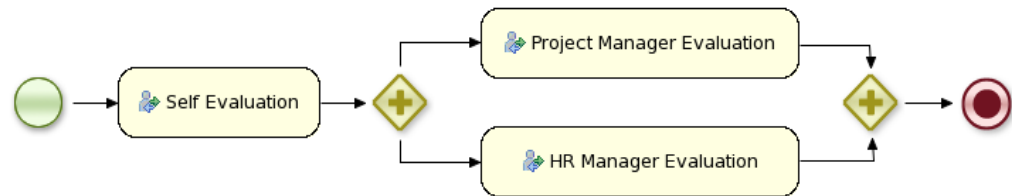


Extra features

- Process instance migration
- jBPM installer
- JUnit testing
- Spring
- OSGi
- Migration from jBPM3(/4)

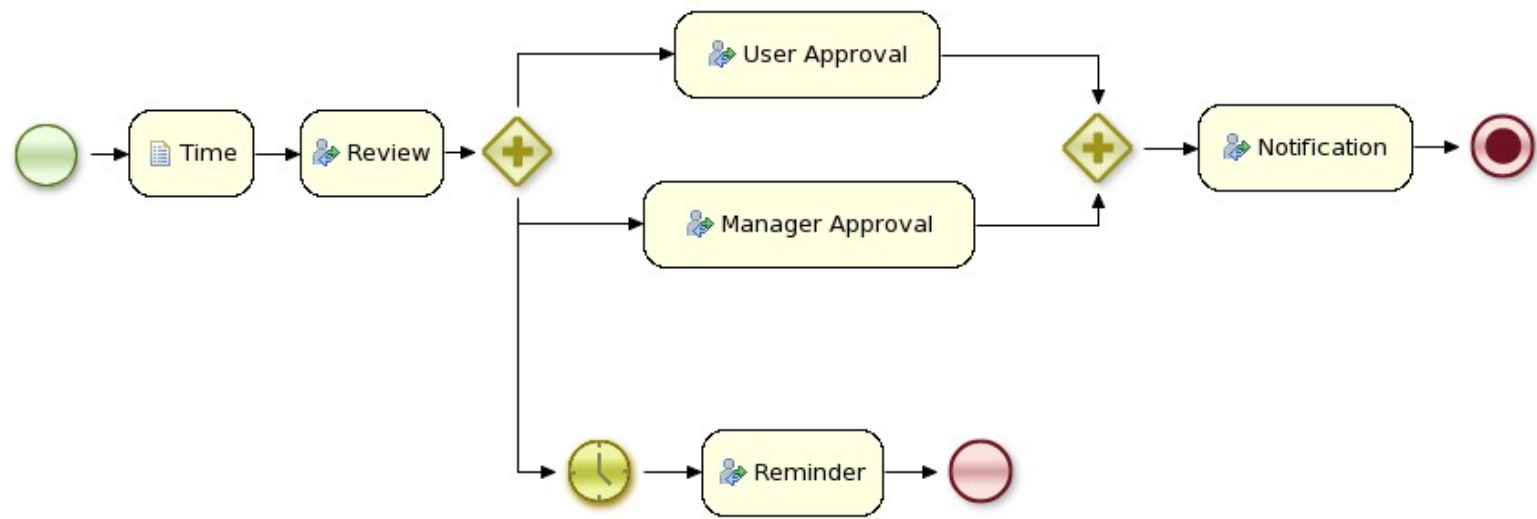
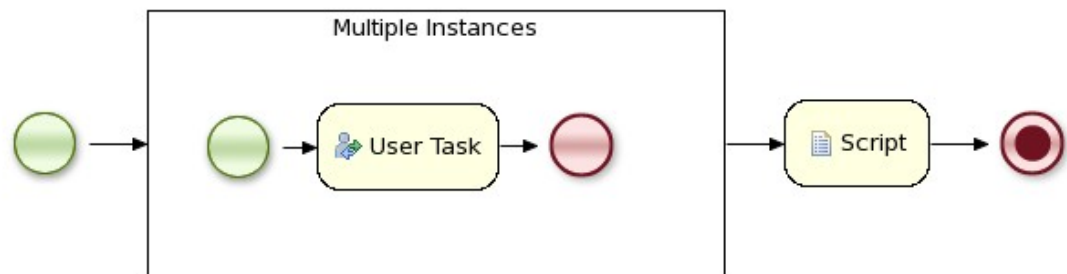
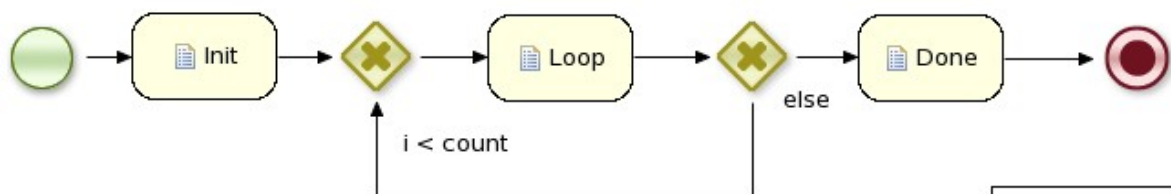
Examples

- Evaluation



- Examples module

- Looping
- Multi-instances
- Human tasks (including user / group assignment, delegation, forms, etc.)
- Process + rules integration





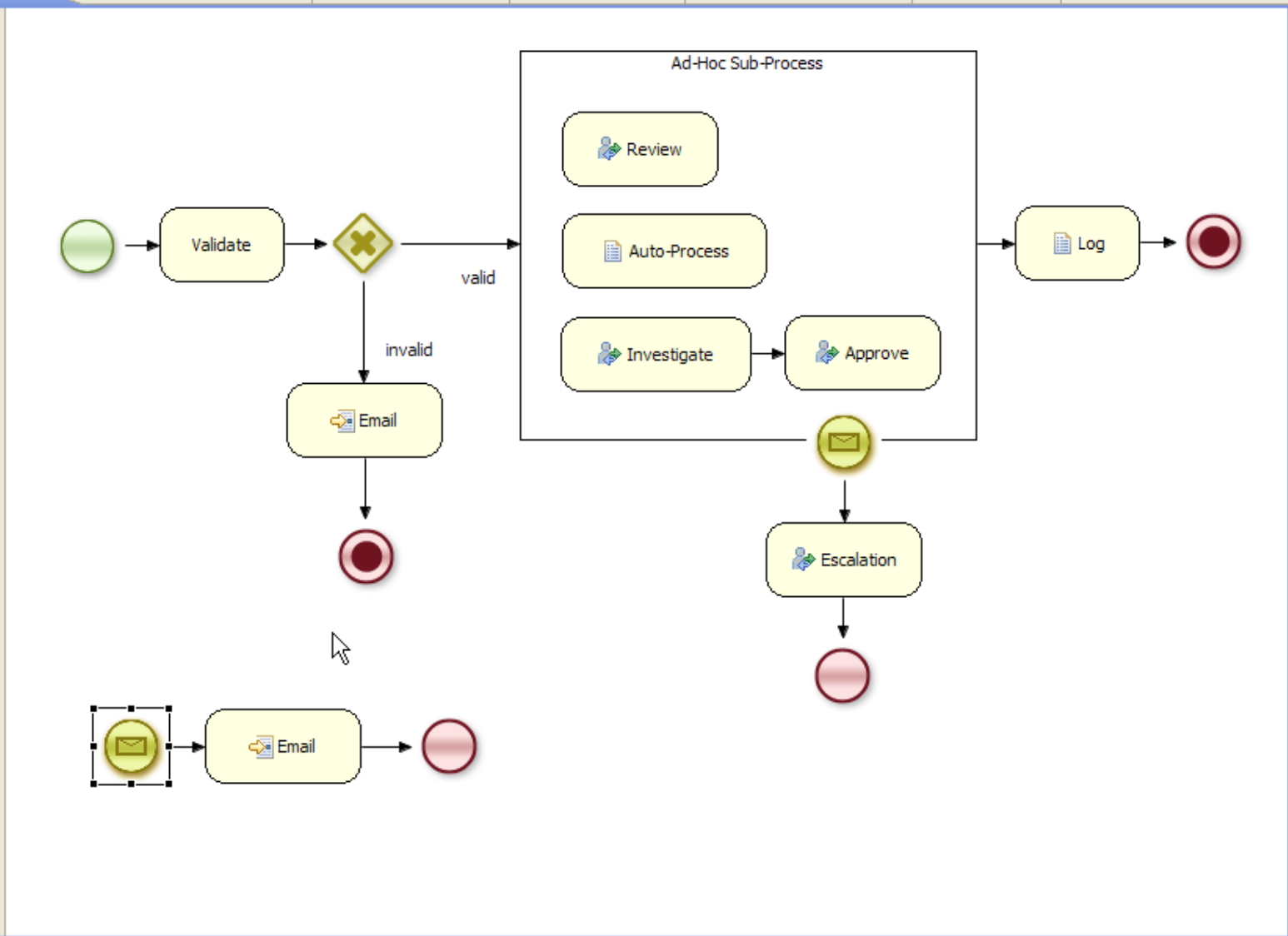
Select
Marquee
Sequence Flow

Components

- Start Event
- End Event
- Rule Task
- Gateway [diverge]
- Gateway [converge]
- Reusable Sub-Process
- Script Task
- Timer Event
- Error Event
- Message Event
- User Task
- Embedded Sub-Process
- Multiple Instances

Service Tasks

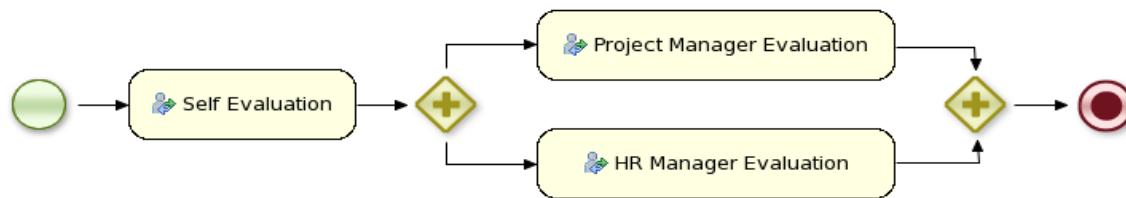
- Log
- Email



Social, Cloud and Mobile

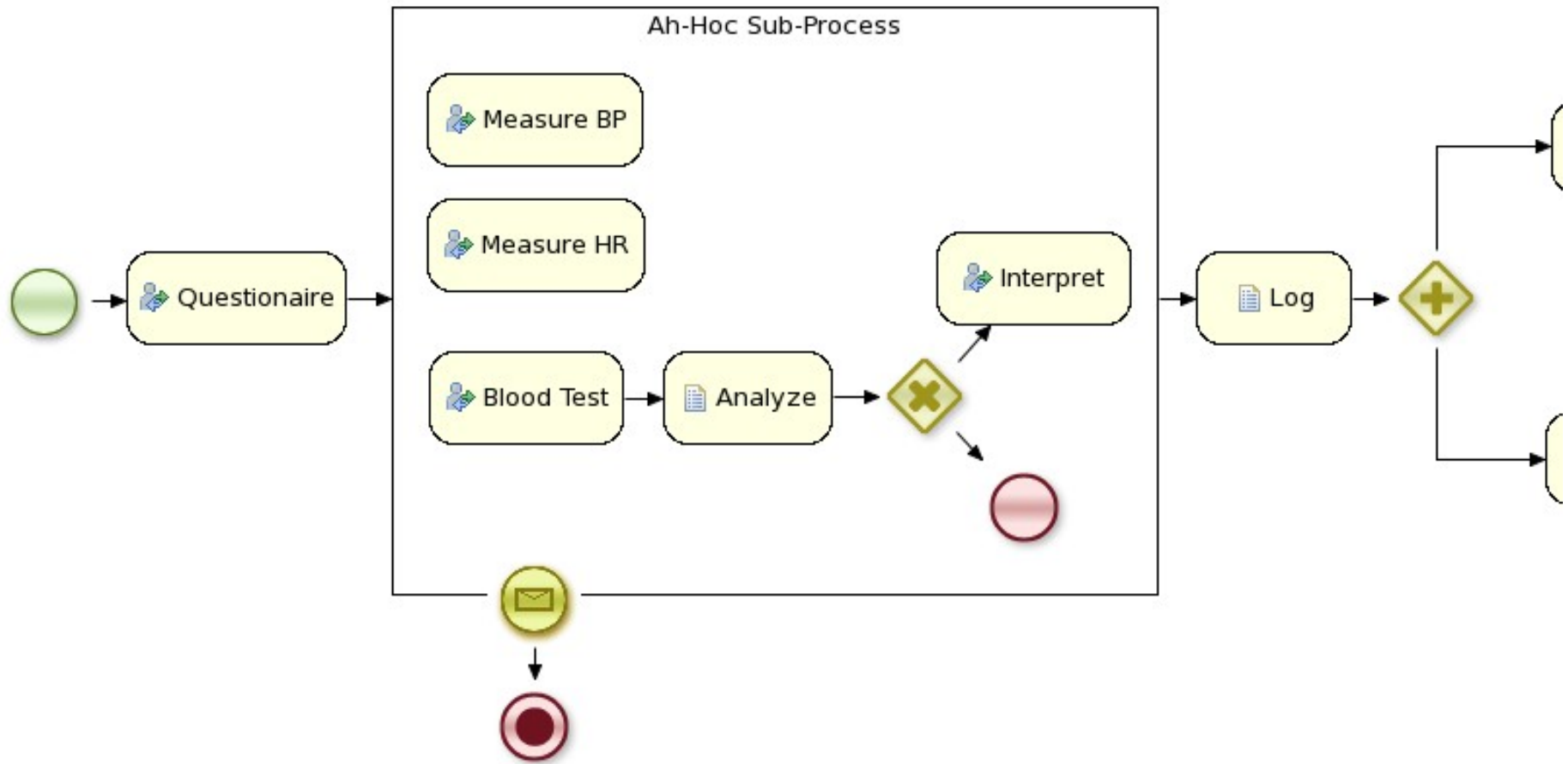
Ready for the future?

Traditional BPM 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)

Example: Clinical DSS



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)

JBoss AS 7

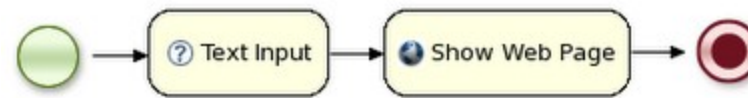
- Blazingly fast
 - Lightweight
 - Module core
-
- jBPM5 on AS7: Lightning !

OpenShift

- Based on Open Source
- Innovation
- Choice

- Java, PHP, Ruby, Python, Perl & more
- Express, Flex, Power
- Amazon EC2

jBPM Everywhere



- Run jBPM5 natively on Android

Roadmap

- jBPM 5.1: June 2011
- jBPM 5.2: November 2011
 - No-code tooling
 - Domain-specific service repository
 - Form builder
 - New BPMN2 Eclipse editor
 - Simulation / testing / replay

Form Builder

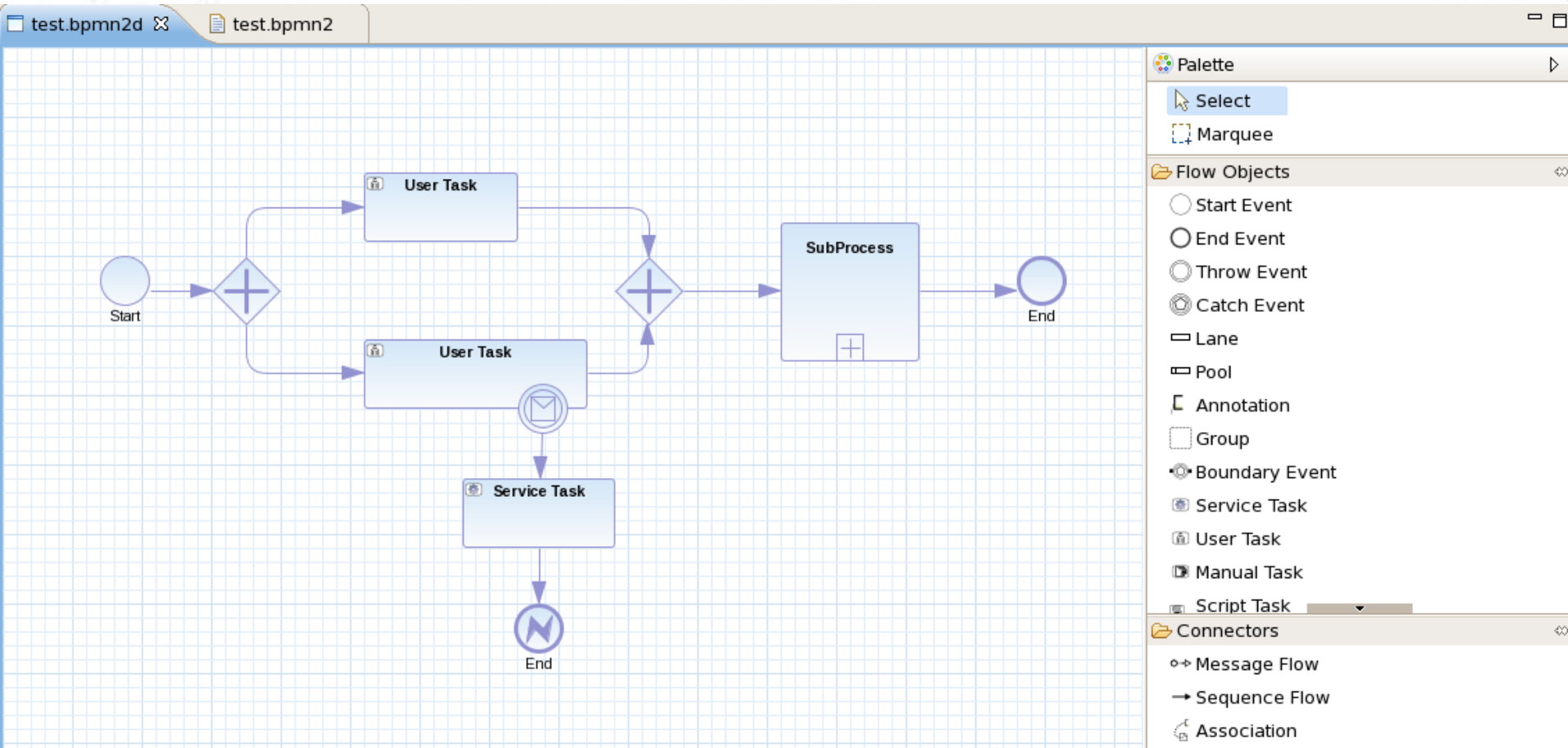
- Generate form for process / task
- Graphically design process (D&D)
- Triggers, validation
- Integrated into Guvnor

The screenshot shows a web form titled "Task: startProcess". Below the title is a section labeled "Outputs:" which contains a table with four rows. Each row has a text input field on the left and a smaller, empty rectangular box on the right. The rows are labeled "userid", "date", "comment", and "result". A mouse cursor is positioned over the "date" input field. Below the table is a "Complete" button.

Task: startProcess	
Outputs:	
userid	
date	
comment	
result	

Complete

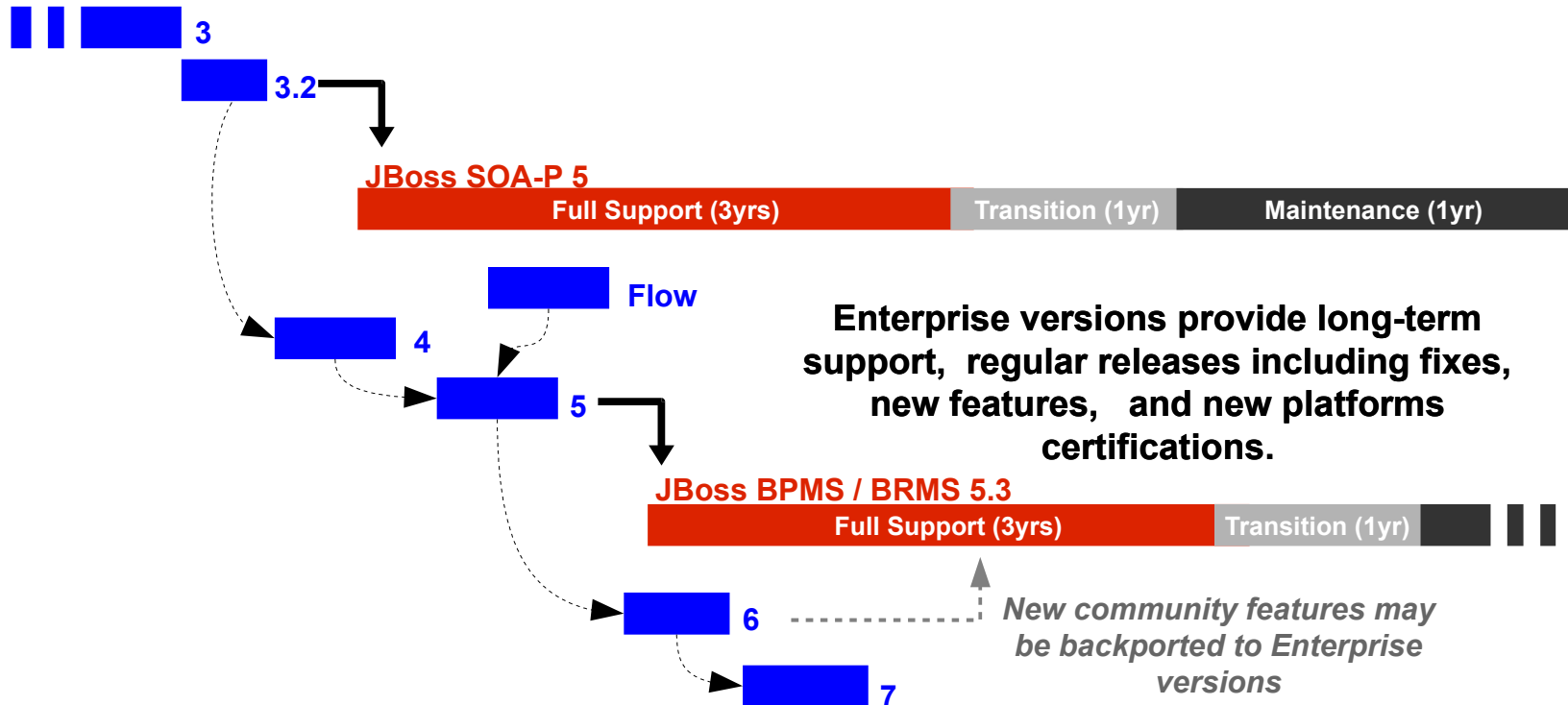
Eclipse BPMN2 editor



<http://eclipse.org/projects/project.php?id=soa.bpmn2-modeler>

JBoss Enterprise Product Delivery Model

Example: jBPM Community and Enterprise Product



While **community projects** continue to rapidly evolve, **enterprise middleware products** focus on long term stability.

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
- jbpm-dev@jboss.org
- [jBPM user forum](#)

Questions?

- Ask me now !
- Find me later
- Hackfest tonight

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