A Guide to Modern BPM Integration

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JBoss Technology Evangelist (Integration & BPM)
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Based on a travel story

- Background
- Getting started
- Building an agency
- Booking a trip
POLICIES/RULES CHALLENGE
VISIBILITY, CONSISTENCY, AND AGILITY

Application/Process
Embedded rules/policies
1. Separate the business rules from the applications

1. Express rules in terms that the business can readily understand - **visibility**

1. Empower business and IT experts to collaborate - **agility**
The Swedish Board of Agriculture (SJV) distributes grants from the EU to Swedish Farmers. They process over 60,000 applications for grants every year. The complex parameters for grants are updated every year. SJV needs to update thousands of rules on its systems.

When SJV needed to more quickly and intuitively update the parameters, increase traceability and improve costs using a more integrated approach, they turned to Red Hat.

Using JBoss BRMS, SJV found a threefold increase in performance over their previous processes. The flexibility and manageability of Red Hat JBoss BRMS showed quickly with the ease with which they set up, manage and change rules more swiftly.

“We set out to deliver the best service possible to our stakeholders. We want to manage applicants more quickly, and implementing a flexible system made rule changes simpler and more cost efficient. We wanted a new system that would increase the traceability, gaining both insight into, and transparency of, the organizations approval process.”

Markus Milerup
Unit manager Swedish Board of Agriculture (SJV)
To succeed, CIOs and their business partners will need to innovate — figuring out how they can change products, processes, go-to-market strategies, and their organizational structures — to meet the changing needs of their customers in a rapidly evolving marketplace.

Forrester Research, 2015
BUSINESS CHALLENGE: INEFFICIENT PROCESSES
CONSISTENCY, VISIBILITY, AGILITY

scan
review
adjudicate
history check
account update
accounting
final approval
Business experts create a model of the business process.
BUSINESS SOLUTION – BUSINESS PROCESS AUTOMATION
CONSISTENCY + VISIBILITY = AGILITY

BPMS

AHA!

redhat
Food Manufacturer

• Manufacturer of consumer packaged goods experienced inefficiencies, lack of coordination and time consuming in the process of innovation and activities related to new product launch

• They leveraged JBoss BPM Suite to automate the process, from the initial product idea to the product placed on the points-of-sale, including market research, design, procurement, manufacturing, packaging, testing, pricing, and distribution.

• This enabled business users to make changes to process, rules and data on running processes.

• Established monitoring, analytics and reporting mechanisms.

• Implemented continuous process improvement mechanisms.

Benefits:
• Sales of new products increased by 18%.
• Downtime reduced by 20%.
• Overall productivity improved by 38%.
• ROI in 3.8 months.
• End-to-end visibility of business processes. Transparent, controlled and auditable governance.
WHY RED HAT AUTOMATION PRODUCTS?
RED HAT JBOSS MIDDLEWARE

INNOVATE FASTER, IN A SMARTER WAY

DEVELOPMENT TOOLS
Red Hat JBoss Developer Studio

MANAGEMENT TOOLS
Red Hat JBoss Operations Network

VIRTUAL

AUTOMATE
Red Hat JBoss BPM Suite
Red Hat JBoss BRMS

INTEGRATE
Red Hat JBoss Fuse
Red Hat JBoss Fuse Service Works
Red Hat JBoss A-MQ
Red Hat JBoss Data Virtualization

ACCELERATE
Red Hat JBoss Enterprise Application Platform
Red Hat JBoss Data Grid
Red Hat JBoss Web Server
FeedHenry by Red Hat (mobile)

PHYSICAL

VIRTUAL

PUBLIC CLOUD

PRIVATE CLOUD
SOLUTION - AUTOMATE PRODUCTS

JBoss BPM Suite

- Business Process Management
- Business Resource Planning
- Business Rules Management
- Complex Event Processing

JBoss BRMS
Detect events of significance to a business by recognizing time-based patterns in one or more real-time data feeds...
RED HAT JBOSS: MEETING THE CHALLENGE – 3 KEY TECHNOLOGIES

- Business Process Management
- Business Rules Management
- Complex Event Processing
SOLUTION

JBoss xPaaS Service: BPM in the Cloud

- Create process models using cloud service
- Export to business process management (BPM) platform
- Share process models
- Orchestrate applications and services spanning cloud and on-premise
- PaaS UX simplifies configuration

aPaaS
JBoss EAP

iPaaS
JBoss Fuse
JBoss A-MQ

bpmPaaS
JBoss BPM Suite

mPaaS
FeedHenry by Red Hat

*redhat.com/en/technologies/cloud-computing/openshift
JBoss BPM Travel Agency project
Interesting aspects Travel Agency

- 6 external web service calls
  - services sources provided
- user tasks & forms
- rule integration
  - decision table, technical rules, guided rules
- sub-processes
- compensation points (aka roll-back)
- fraud detection
- web application
  - example RestAPI usage
Getting started

Easy as one... two... three!

1. Install on your machine
2. Install with one-click in Cloud
3. Generate a container install
Build a travel agency

Project artifacts:
- Data model
- Pricing rules
- Discount rules (decision table)
- Task forms
- Process
  - service tasks
  - user tasks
  - compensation
- Web application (RestAPI)
Rule the World
Practical rules & BPM development
a Red Hat JBoss BPM Suite workshop

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Build a Travel Agency

Building a
JBoss Travel Agency
with Red Hat JBoss BPM Suite

Eric D. Schabell
JBoss Technology Evangelist
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http://schabell.org
## Data Model

### BookingObject

**Create new field**

<table>
<thead>
<tr>
<th>Field</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Id</td>
<td>Insert a valid Java identifier</td>
</tr>
<tr>
<td>Label</td>
<td>Insert a label</td>
</tr>
</tbody>
</table>

### BookingObject (org.specialtripsagency.BookingObject)

<table>
<thead>
<tr>
<th>Field</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>applicant</td>
<td>Applicant</td>
</tr>
<tr>
<td>availableFlights</td>
<td>Flight</td>
</tr>
<tr>
<td>availableHotels</td>
<td>Hotel</td>
</tr>
<tr>
<td>bookingConfirmed</td>
<td>Boolean</td>
</tr>
<tr>
<td>bookingId</td>
<td>Integer</td>
</tr>
<tr>
<td>paymentDetails</td>
<td>PaymentDetails</td>
</tr>
<tr>
<td>reviewerComment</td>
<td>String</td>
</tr>
<tr>
<td>totalPrice</td>
<td>Integer</td>
</tr>
<tr>
<td>travelDetails</td>
<td>TravelDetails</td>
</tr>
</tbody>
</table>

**Description**

<table>
<thead>
<tr>
<th>Identifier</th>
<th>Field</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>additionalPriceDiscount</td>
</tr>
<tr>
<td></td>
<td>Additional Price Discount Provided On Package</td>
</tr>
</tbody>
</table>

**Type**

<table>
<thead>
<tr>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integer</td>
</tr>
</tbody>
</table>

**Equals**

<table>
<thead>
<tr>
<th>Equals</th>
</tr>
</thead>
<tbody>
<tr>
<td>False</td>
</tr>
</tbody>
</table>

**Position**

<table>
<thead>
<tr>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
</tr>
</tbody>
</table>
package org.specialtripsagency

import org.specialtripsagency.BookingObject
import org.specialtripsagency.Applicant
import org.specialtripsagency.Flight

rule "CalculateTotalPriceBasedOnDiscountProvided"

when
    tempApplicantObj: Applicant(numberOfTravelers > 0)
    flight: Flight(ratePerPerson > 0)
    hotel: Hotel(roomPrice > 0)
    bookingObject: BookingObject(applicant==tempApplicantObj, availableFlights==flight, availableHotels==hotel)

then
    System.out.println("Running CalculateTotalPriceBasedOnDiscountProvided Rule... Calculating discount");
    System.out.println("bookingObject.getTotalPrice() value is: " + bookingObject.getTotalPrice());
    System.out.println("flight.getRatePerPerson() value is: " + flight.getRatePerPerson());
    System.out.println("flight.getPriceDiscount() value is: " + flight.getPriceDiscount());
    System.out.println("hotel.getRoomPrice() value is: " + hotel.getRoomPrice());
    System.out.println("hotel.getPriceDiscount() value is: " + hotel.getPriceDiscount());

    modify(bookingObject) { setTotalPrice(
        bookingObject.getTotalPrice() +
        ((flight.getRatePerPerson() - flight.getPriceDiscount()) * tempApplicantObj.getNumberOfTravelers()) +
        ((hotel.getRoomPrice() - hotel.getPriceDiscount()) * tempApplicantObj.getNumberOfTravelers()));
    }

end

System.out.println("Calculated Total Price is: [" + bookingObject.getTotalPrice() + "]");
Discounting

Guided Decision Table Editor [AdditionalTravelersDiscount]

All the rules inherit: None selected

- Decision table
  - New column
  - Condition columns
    - Flight (flight)
    - Applicant (applicant)
      - Min Flight Price
      - Min Travellers
      - Max Travellers
  - Action columns
    - Discount Price
- (options)
  - Attributes:
    - ruleflow-group: Default value: discount
    - no-loop: Default value: Yes

Add row... Otherwise Analyze... Audit log

<table>
<thead>
<tr>
<th>#</th>
<th>Description</th>
<th>ruleflow-group</th>
<th>no-loop</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>discount</td>
<td>discount</td>
<td>Yes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Min Flight Price</th>
<th>Min Travellers</th>
<th>Max Travellers</th>
<th>Discount Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>450</td>
<td>5</td>
<td>10</td>
<td>25</td>
</tr>
</tbody>
</table>
### SPECIAL TRIPS AGENCY - WEB FORM

**Customer Details:**
- Applicant Name
- Email Address

**Travel Details:**
- Number Of Travelers
- From Destination: London
- To Destination: Edinburgh
- Preferred Date Of Arrival (YYYY-MM-DD)
- Preferred Date Of Departure (YYYY-MM-DD)
- Other Details: N/A

**Submit**

Powered by Red Hat JBoss BPM Suite
Fraud detection
But there's more...

- Integration and microservice migrations
- Integration with virtualized data sources
- JBoss BPM workshops
Components in BPM microservices migration

Repository

Business Logic Definitions

Business Events

Business Data

Business Users

Hotel Booking Service

Flight Booking Service

Developers

Operations

Business Analysts

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JBoss BPM Travel Agency Micro-Services

Flight Booking Service

Hotel Booking Service

HotelBooking
AvailableHotels
FlightCancel
AvailableFlights

Web Service

Scale out service

Load Balance

Gateway

Application Container (JBoss EAP)
Components with BPM data integration

- Business Analysts
- Developers
- Operations
- Repository
- Business Logic Definitions
- Business Events
- Web Services
- Java
- Business Data
- Business Users
JBoss BPM Travel Agency
Single View of Bookings Processing

- **Situation / Needs:**
  - Management seeks visibility and control, while bookings operations need to run smoothly through acquisition
  - Bookings data now spread across multiple databases/systems

- **Solution:**
  - Consolidate all data into “virtual data mart”
  - Transformation of data differences
  - Provide real-time data access to management portal and travel bookings workflow system

- **Benefits:**
  - Management get timely information on bookings and operating metrics
  - Travel agents receive all the information to process bookings faster
  - Sensitive data preserved until acquisition integration
- JBoss BPM Suite starter kit:
  - http://jboss.org/products/bpmsuite
  - http://www.jboss.org/products/bpmsuite/get-started

- JBoss BPM Travel Agency:
  - https://github.com/jbossdemocentral/bpms-travel-agency-demo

- JBoss BPM Integration Stories:

- JBoss BPM workshops:
  - http://bpmworkshop-onthe.rhcloud.com
Questions?

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