



RED HAT® JBOSS®
MIDDLEWARE

A Guide to Modern BPM Integration

Eric D. Schabell
JBoss Technology Evangelist (Integration & BPM)
Red Hat Summit - June 2015

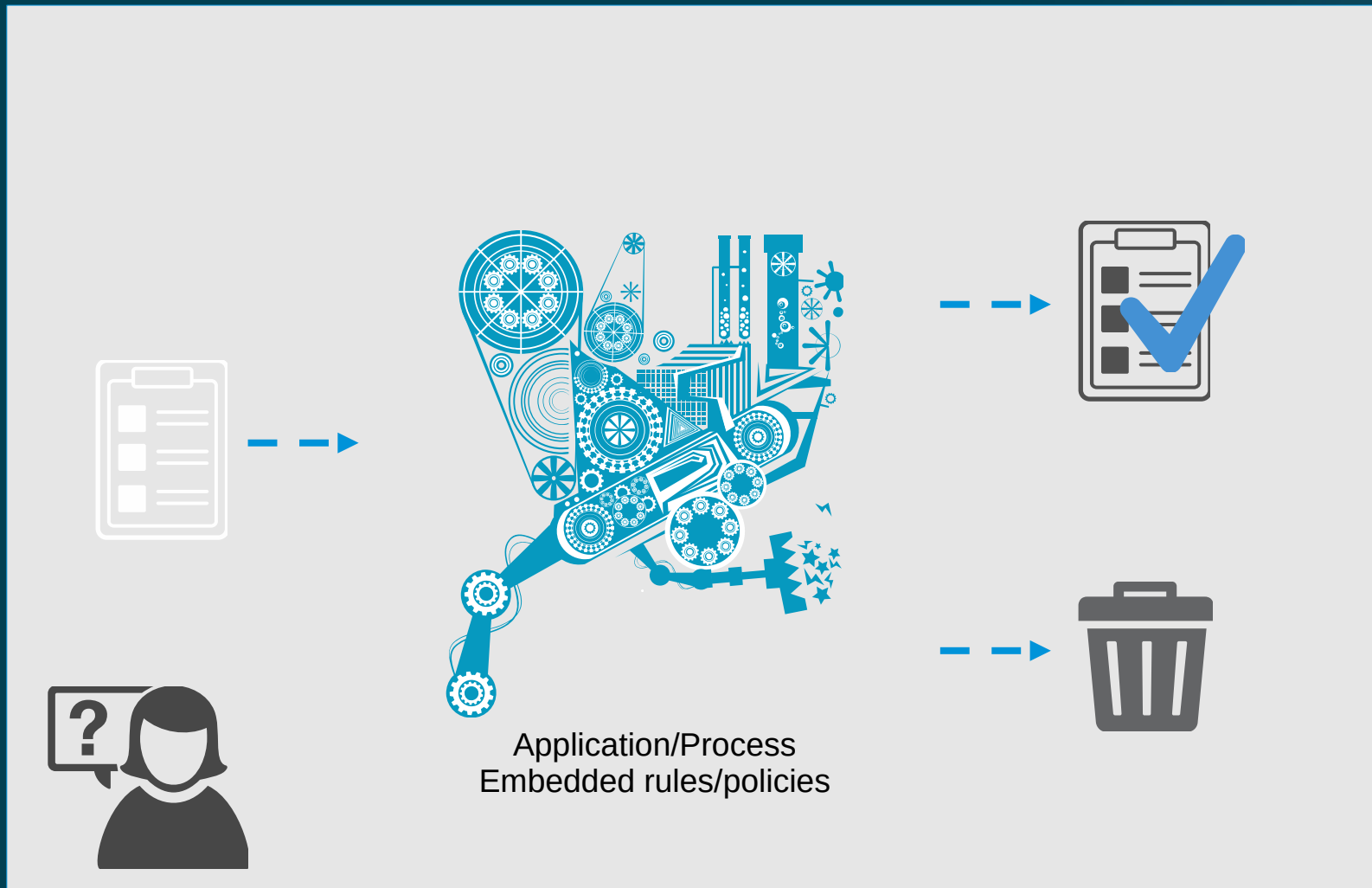
Based on a travel story

- Background
- Getting started
- Building an agency
- Booking a trip



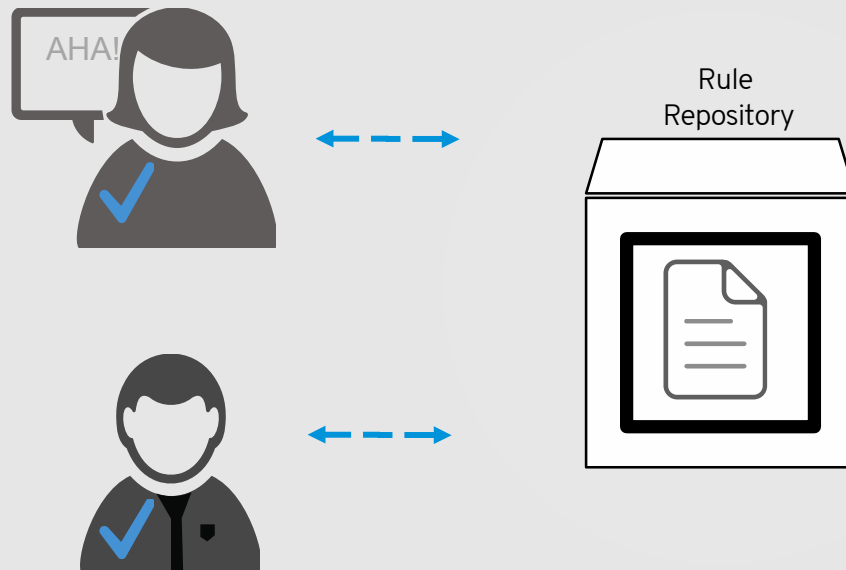
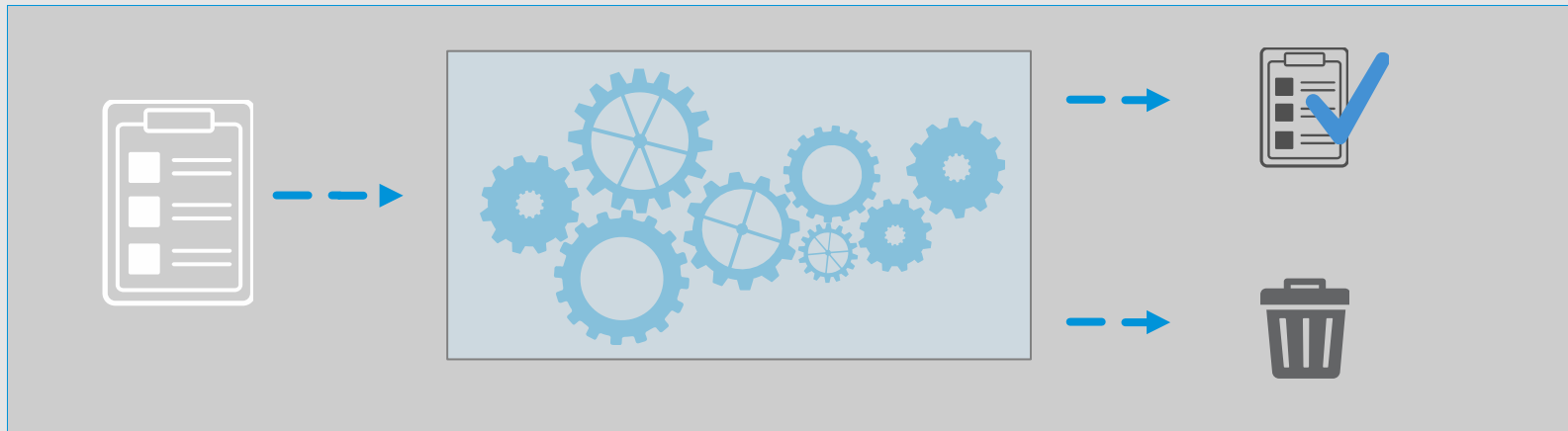
POLICIES/RULES CHALLENGE

VISIBILITY, CONSISTENCY, AND AGILITY



POLICIES/RULES SOLUTION

VISIBILITY + CONSISTENCY = AGILITY



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**



LOCATION
Jonköping, Sweden



**GOVERNMENT
INDUSTRY**

CUSTOMER SINCE
2010

**RED HAT JBOSS
BRMS**

- 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)

POLICIES AND RULES

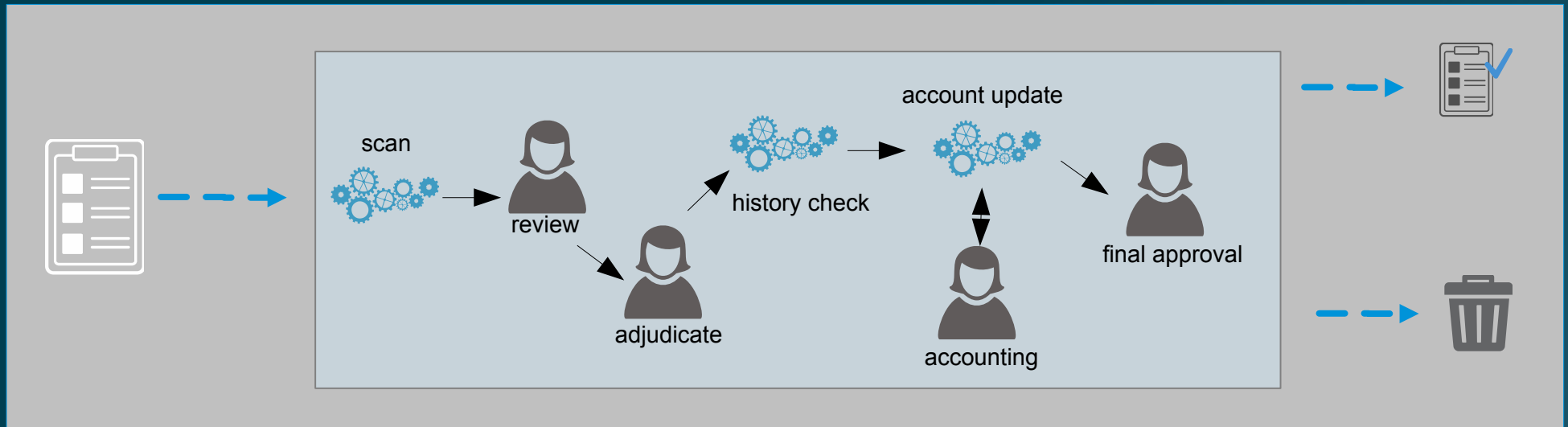
To succeed, CIOs and their business partners will need to innovate – figuring out how they can **change products, processes, go-to-market strategies, and their organizational structures** – to meet the changing needs of their customers in a rapidly evolving marketplace.

Forrester Research, 2015

PROCESSES

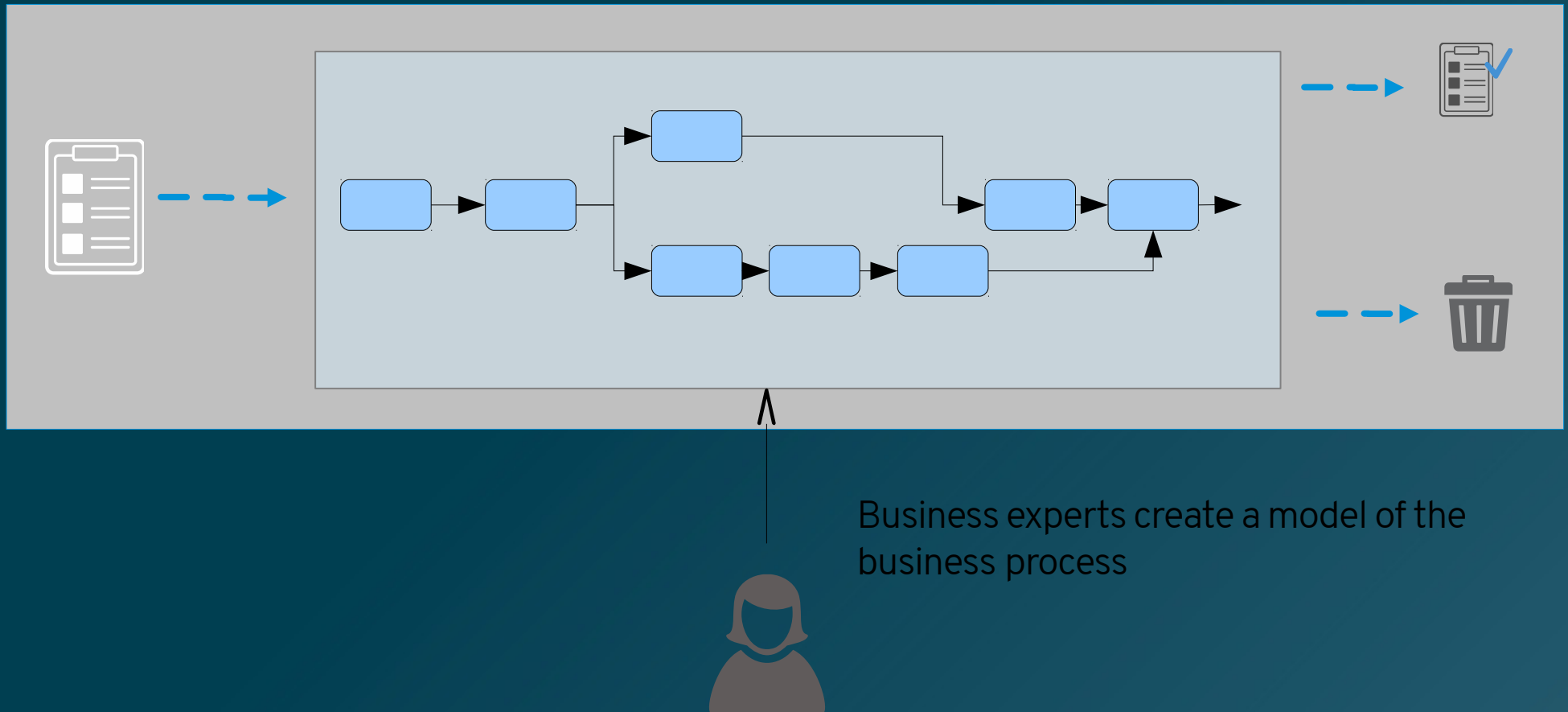
BUSINESS CHALLENGE: INEFFICIENT PROCESSES

CONSISTENCY, VISIBILITY, AGILITY



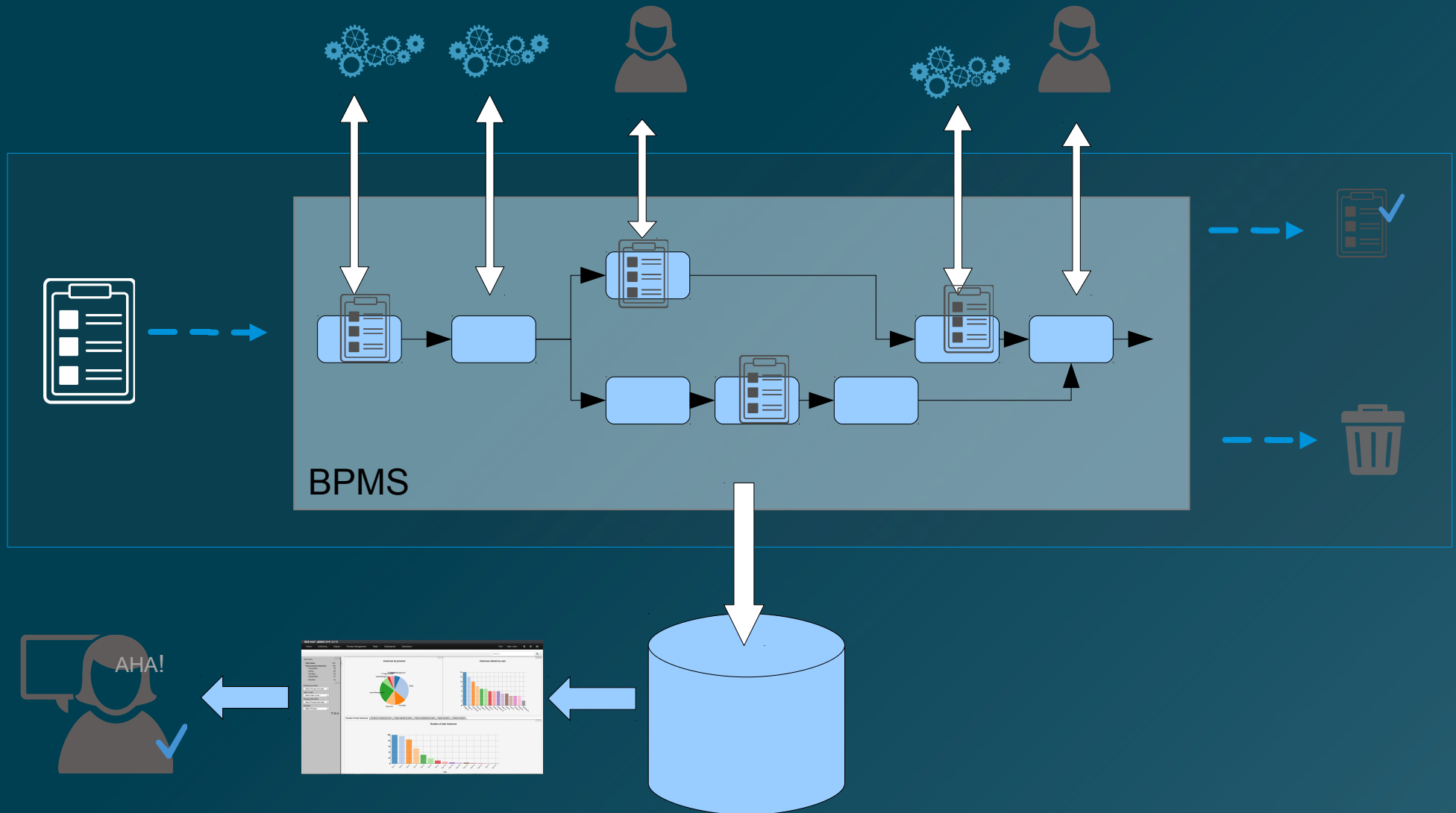
BUSINESS SOLUTION – BUSINESS PROCESS AUTOMATION

CONSISTENCY + VISIBILITY = AGILITY



BUSINESS SOLUTION – BUSINESS PROCESS AUTOMATION

CONSISTENCY + VISIBILITY = AGILITY



Food Manufacturer



LOCATION
Europe

Consumer Packaged
Goods

CUSTOMER SINCE

RED HAT JBOSS
BPM SUITE

- 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:

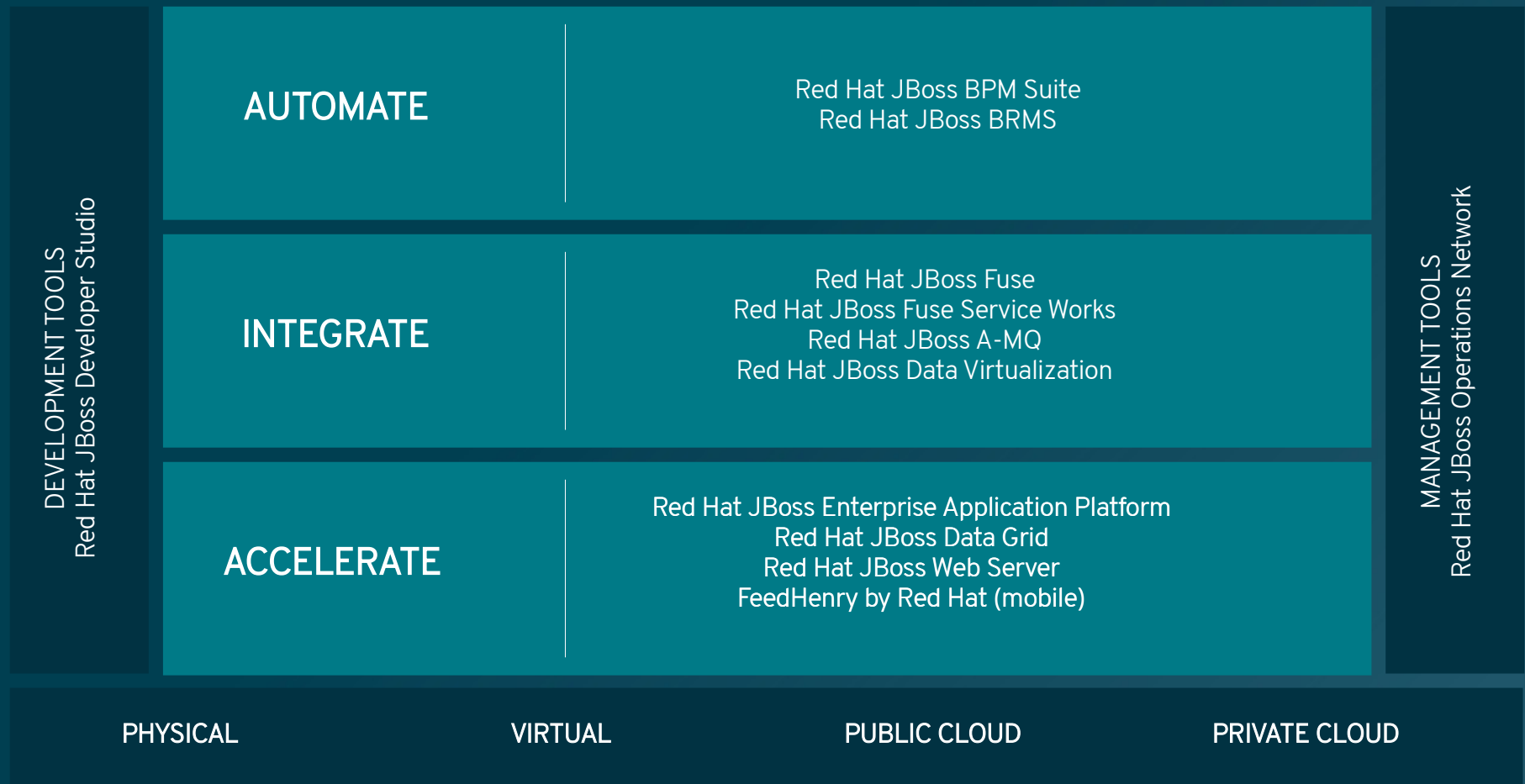
- Sales of new products increased by 18%.
- Downtime reduced by 20%.
- Overall productivity improved by 38%.
- ROI in 3.8 months.
- End-to-end visibility of business processes. Transparent, controlled and auditable governance.

WHY RED HAT AUTOMATION PRODUCTS?

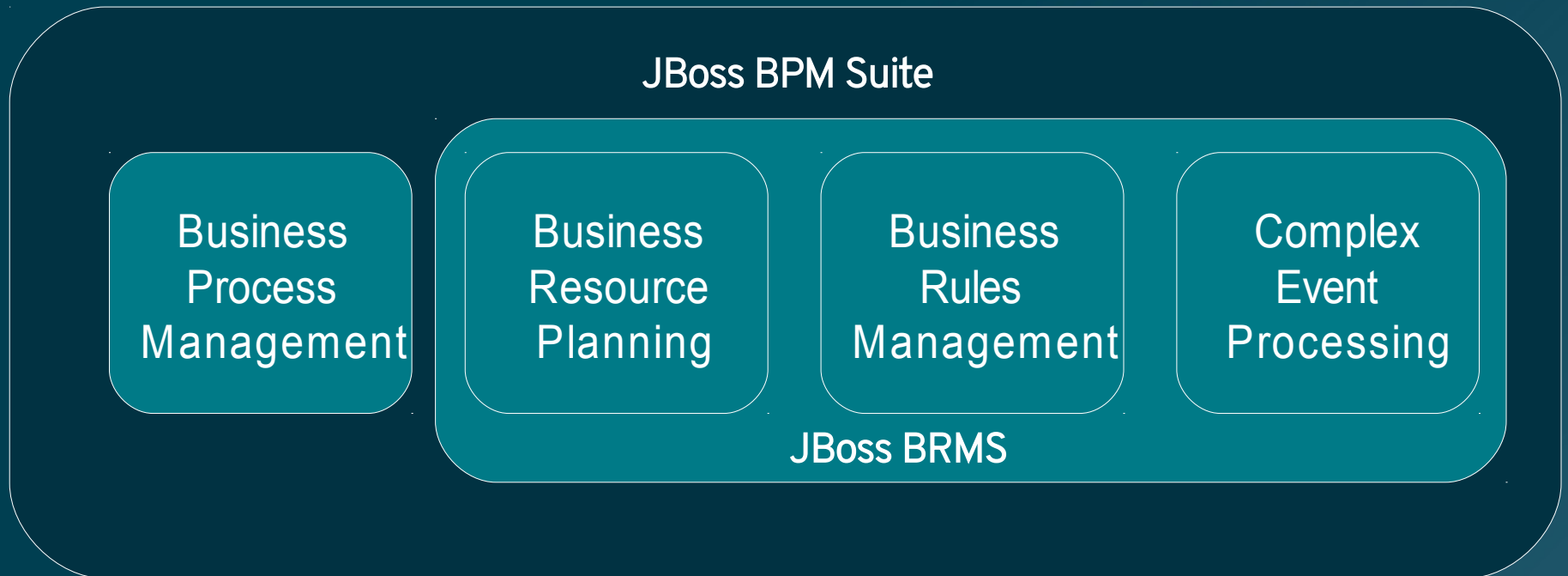


RED HAT JBOSS MIDDLEWARE

INNOVATE FASTER, IN A SMARTER WAY



SOLUTION - AUTOMATE PRODUCTS

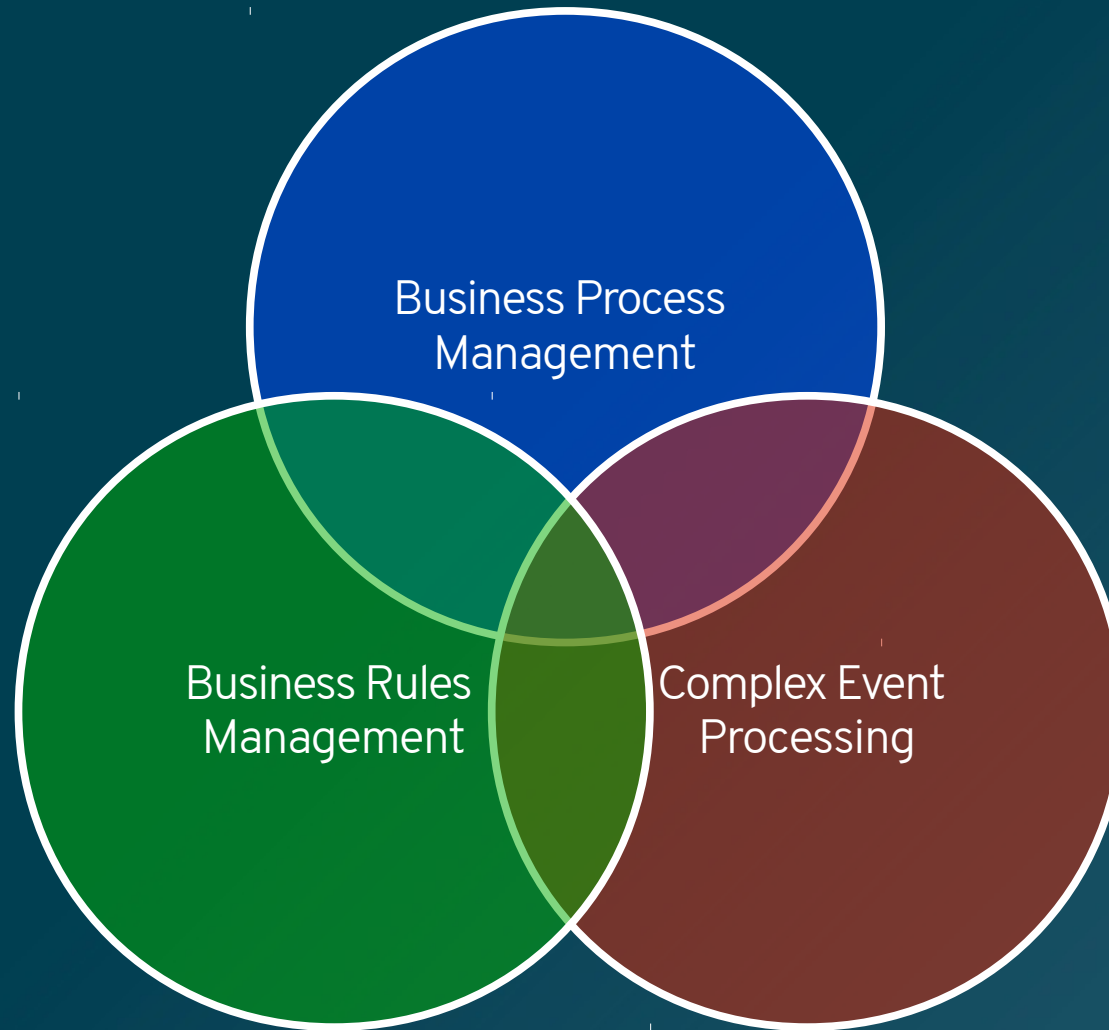


COMPLEX EVENT PROCESSING : “ACTIVE” DECISION MAKING

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



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



OPENSIFT
by Red Hat*



ON-PREMISE

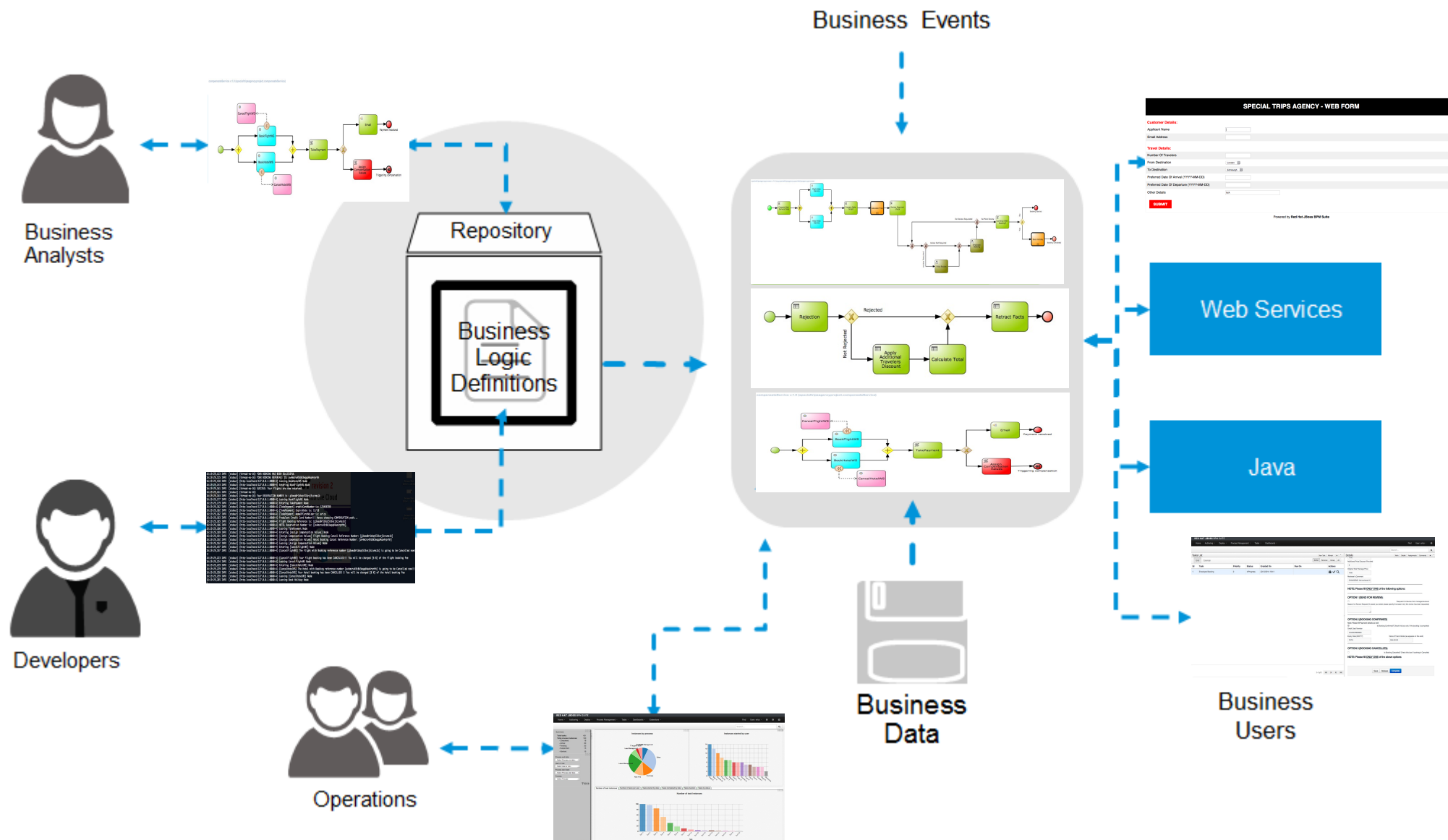


PRIVATE



PUBLIC

JBoss BPM Travel Agency project



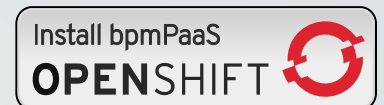
Interesting aspects Travel Agency

- 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)

JBoss BPM Online Workshop

Rule the World

Practical rules & BPM development

a Red Hat JBoss BPM Suite workshop

Eric D. Schabell
JBoss Technology Evangelist
[@ericSchabell](https://twitter.com/ericSchabell)
<http://schabell.org>

Build a Travel Agency

Building a JBoss Travel Agency with Red Hat JBoss BPM Suite

Eric D. Schabell
JBoss Technology Evangelist
@ericSchabell
<http://schabell.org>

Data Model

Data modeler

Save



specialtripsagencypr...



Create

Identifier

Applicant



BookingObject



Flight



Hotel



PaymentDetails



Rejection



TravelDetails



BookingObject

Create new field

*Id

Insert a valid Java identifier

Label

Insert a label

*Type



Create

BookingObject (org.specialtripsagency.BookingObject)

5	additionalPriceDiscount	Additional Price Discount Provided On Package		Integer	✕
0	applicant	Applicant	i	Applicant	✕
2	availableFlights	Available Flight	i	Flight	✕
3	availableHotels	Available Hotel	i	Hotel	✕
8	bookingConfirmed	Is Booking Confirmed?		Boolean	✕
6	bookingId	Booking Reference Number/Identifier		Integer	✕
9	paymentDetails	Payment Details	i	PaymentDetails	✕
7	reviewerComment	Reviewers Comment		String	✕
4	totalPrice	Total Package Price		Integer	✕
1	travelDetails	TravelDetails	i	TravelDetails	✕

Data object

Field

Identifier

additionalPriceDiscount

Label

Additional Price Discount P

Description

Type

Integer

Equals



Position

5



Pricing

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


Discounting

Guided Decision Table Editor [AdditionalTravelersDiscount]

All the rules inherit: None selected

Decision table

New column

Condition columns

Flight [flight]

Min Flight Price

Applicant [applicant]

Min Travellers

Max Travellers

Action columns

Discount Price

(options)

Attributes:

ruleflow-group

 Default value: discount

Hide column:

no-loop

 Default value: ☒

Hide column:

Add row...

Otherwise

Analyze...

Audit log

	#	Description	ruleflow-group	no-loop	Min Flight Price	Min Travellers	Max Travellers	Discount Price
<div><div></div><div></div></div>	1		discount	<input checked="" type="checkbox"/>	450	5	10	25

Forms

Form Modeler [reviewQuote-taskform] Save Delete Rename ✕ ▼

Form data origin

Add fields by origin

Add fields by type

Form properties

bookingObject

applicant

availableFlights

availableHotels

bookingConfirmed

paymentDetails

travelDetails

flight

hotel

Booking ID - Reference Number (Agency Related)

Airlines

Rate Per Person

Hotel Name

Hotel Location/City

Hotel Room Price (per person)

Duration of stay (in days)

Hotel Room Type

Travelling From

Travelling To

Date Of Departure

Date Of Arrival

Was Review Requested?

Reason For Review Request

Original Total Package Price

Total Discount Provided

*Total Price (Quote Price)

*Review Comment (Please summarise the changes for this review)

Properties (flight_company)

Field type

Short text

Field name:

flight_company

Label:

Airlines

Default error message:

Label css class:

Label css style:

Help text:

Style class:

Css style:

Size:

Max length:

☐ Required ☒ Read only ☐ Show HTML ☐ Password

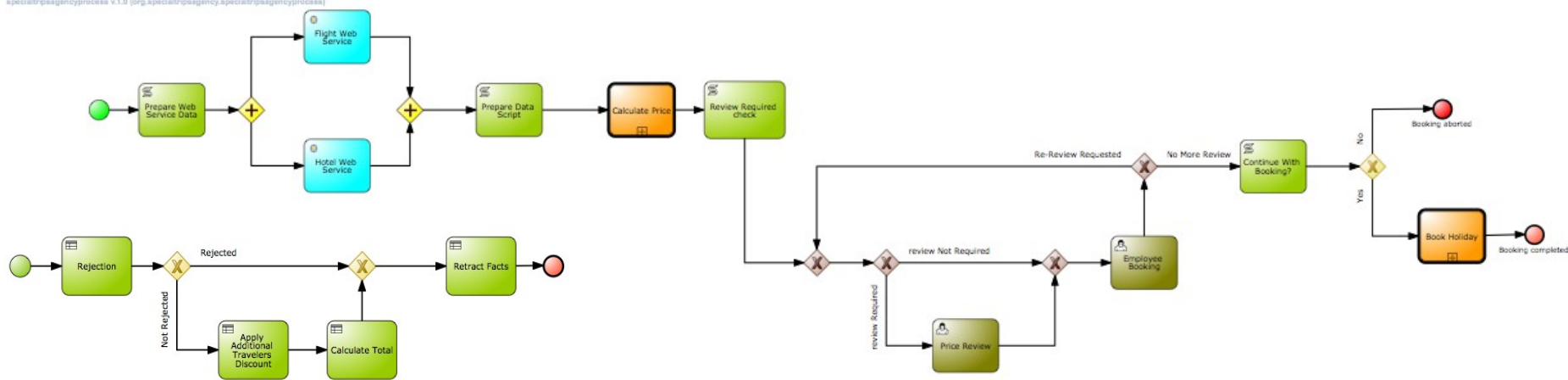
Formula:

Range value:

Pattern:

Default value formula:





RED HAT JBOSS BPM SUITE

Home - Authoring - Deploy - Process Management - Tasks - Dashboards - Extensions -

Find User: erics - ? i

Explore - New Item - Repository -

Search... Q

Project Explorer



Demos - / specialtripsagency - / specialtripsagencyproject

Open Project Editor

BUSINESS PROCESSES

[calculatepriceprocess](#)
[compensateService](#)
[specialtripsagencyprocess](#)

DRL

FORM DEFINITIONS

GUIDED DECISION TABLES

GUIDED RULES

OTHERS

TEST SCENARIOS

WORK ITEM DEFINITIONS

compensateService.bpmn2 - Business Processes

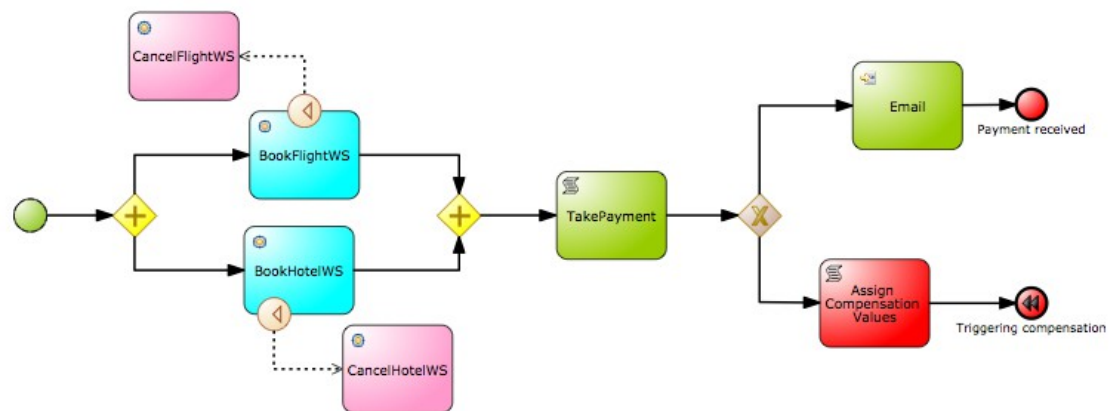


Object Library

Choose library set:

- Full
- Tasks
- Subprocesses
- Start Events
- End Events
- Catching Intermediate Events
- Throwing Intermediate Events
- Gateways
- Service Tasks
- Connecting Objects
- Data Objects
- Swimlanes
- Artifacts
- Workflow Patterns

compensateService v1.0 (specialtripsagencyproject.compensateService)



Editor Overview

Web application

SPECIAL TRIPS AGENCY - WEB FORM

Customer Details:

Applicant Name

Email Address

Travel Details:

Number Of Travelers

From Destination

To Destination

Preferred Date Of Arrival (YYYY-MM-DD)

Preferred Date Of Departure (YYYY-MM-DD)

Other Details

SUBMIT

Powered by **Red Hat JBoss BPM Suite**

Book a trip

RED HAT JBOSS BPM SUITE

Home Authoring Deploy Process Management Tasks Dashboards Find User: erics

Search...

Business Process [specialtripsagencyproject.compensateService]

Process Modelling

compensateService v.1.0 (specialtripsagencyproject.compensateService)

```
graph LR; Start(( )) --> Split{+}; Split --> BookFlightWS[BookFlightWS]; Split --> BookHotelWS[BookHotelWS]; BookFlightWS -.-> CancelFlightWS[CancelFlightWS]; BookHotelWS -.-> CancelHotelWS[CancelHotelWS]; BookFlightWS --> Join{+}; BookHotelWS --> Join; Join --> TakePayment[TakePayment]; TakePayment --> XOR{X}; XOR --> Email[Email]; XOR --> AssignComp[Assign Compensation Values]; Email --> End1(( )); AssignComp --> End2((( )));
```

Instance Details

Instance ID 6

Definition Id specialtripsagencyproject.compensateService

Definition Name compensateService

Deployment org.specialtripsagency:specialtripsagencyproject

Definition Version 1.0

Instance State Completed

Current Activities

Instance Log

- 22/Dec/14 16:54:08: 8 - Payment received (EndNode)
- 22/Dec/14 16:54:02: 7 - Email (WorkItemNode)
- 22/Dec/14 16:54:02: 6 - Split
- 22/Dec/14 16:54:02: 5 - TakePayment (ActionNode)
- 22/Dec/14 16:54:02: 4 - Join
- 22/Dec/14 16:54:02: 3 - BookHotelWS (WorkItemNode)
- 22/Dec/14 16:54:02: 4 - Join
- 22/Dec/14 16:54:02: 2 - BookFlightWS (WorkItemNode)
- 22/Dec/14 16:54:02: 1 - Split
- 22/Dec/14 16:54:02: 0 - StartNode

Fraud detection

RED HAT JBOSS BPM SUITE

Home Authoring Deploy Process Management Tasks Dashboards Find User: erics

Business Process [specialtripsagencyproject.compensateService]

Process Modelling

compensateService v.1.0 (specialtripsagencyproject.compensateService)

```
graph LR; Start(( )) --> Split1{+}; Split1 --> BookFlightWS[BookFlightWS]; Split1 --> BookHotelWS[BookHotelWS]; BookHotelWS --> BookHotelWS; BookHotelWS -.-> CancelHotelWS[CancelHotelWS]; BookFlightWS --> Join1{+}; BookHotelWS --> Join1; Join1 --> TakePayment[TakePayment]; TakePayment --> Split2{X}; Split2 --> Email[Email]; Split2 --> AssignComp[Assign Compensation Values]; Email --> End1(( )); AssignComp --> End2(( ))
```

Instance Details

Instance ID 3

Definition Id specialtripsagencyproject.compensateService

Definition Name compensateService

Deployment org.specialtripsagency:specialtripsagencyproject

Definition Version 1.0

Instance State Completed

Current Activities

Instance Log

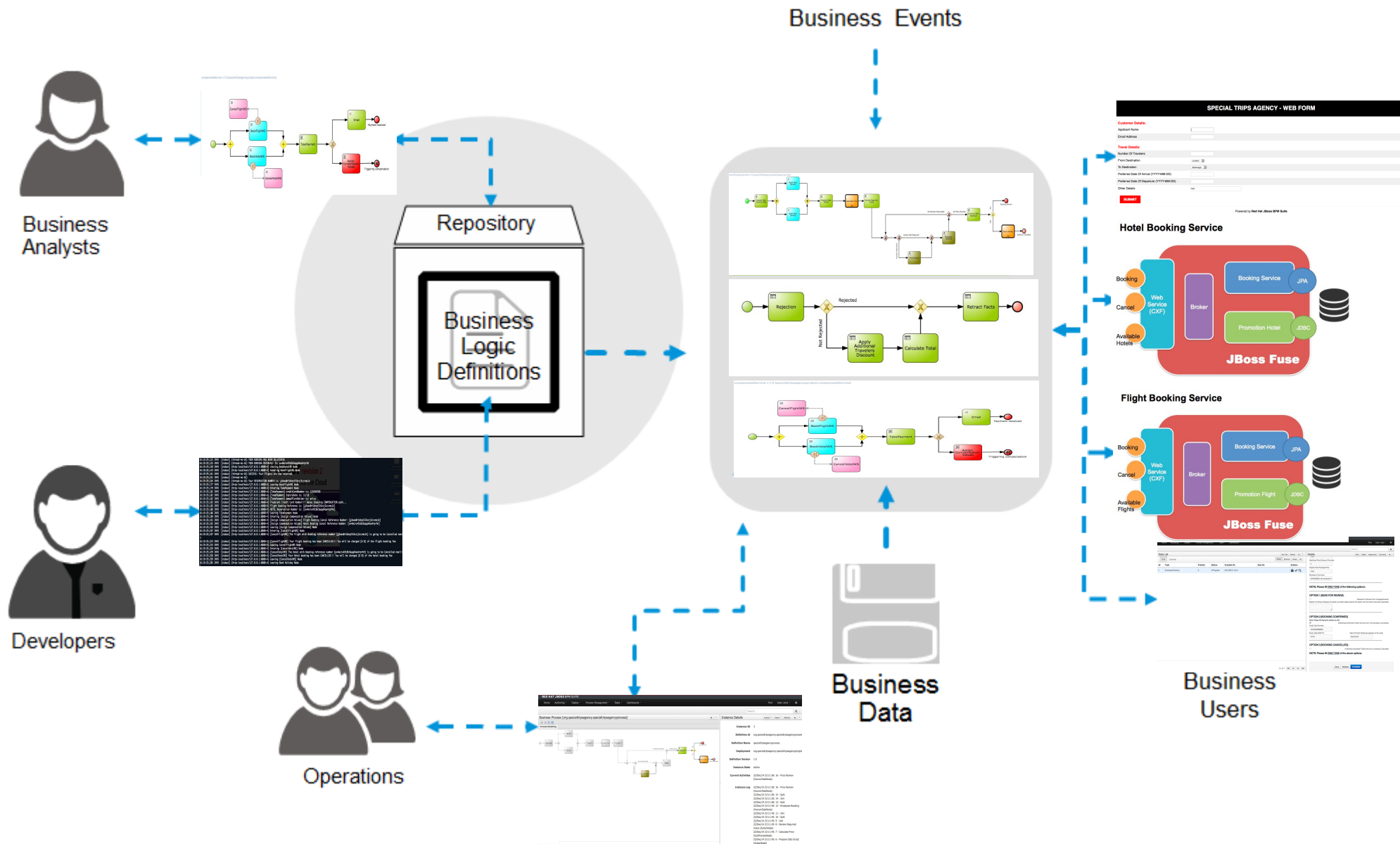
- 22/Dec/14 16:47:43: 12 - CancelHotelWS (WorkItemNode)
- 22/Dec/14 16:47:43: 10 - CancelFlightWS (WorkItemNode)
- 22/Dec/14 16:47:43: 8 - Triggering compensation (EndNode)
- 22/Dec/14 16:47:43: 7 - Assign Compensation Values (ActionNode)
- 22/Dec/14 16:47:43: 6 - Split
- 22/Dec/14 16:47:43: 5 - TakePayment (ActionNode)
- 22/Dec/14 16:47:43: 4 - Join
- 22/Dec/14 16:47:43: 2 - BookFlightWS (WorkItemNode)
- 22/Dec/14 16:47:43: 4 - Join
- 22/Dec/14 16:47:43: 3 - BookHotelWS (WorkItemNode)
- 22/Dec/14 16:47:43: 1 - Split
- 22/Dec/14 16:47:43: 0 - StartNode

Business Process

But there's more...

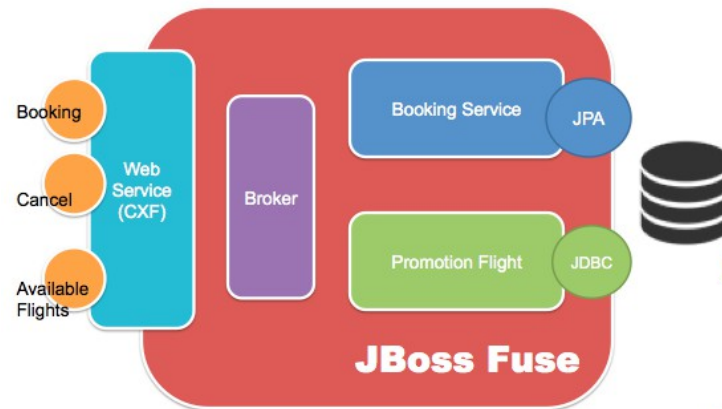
- ✓ Integration and microservice migrations
- ✓ Integration with virtualized data sources
- ✓ JBoss BPM workshops

Components in BPM microservices migration

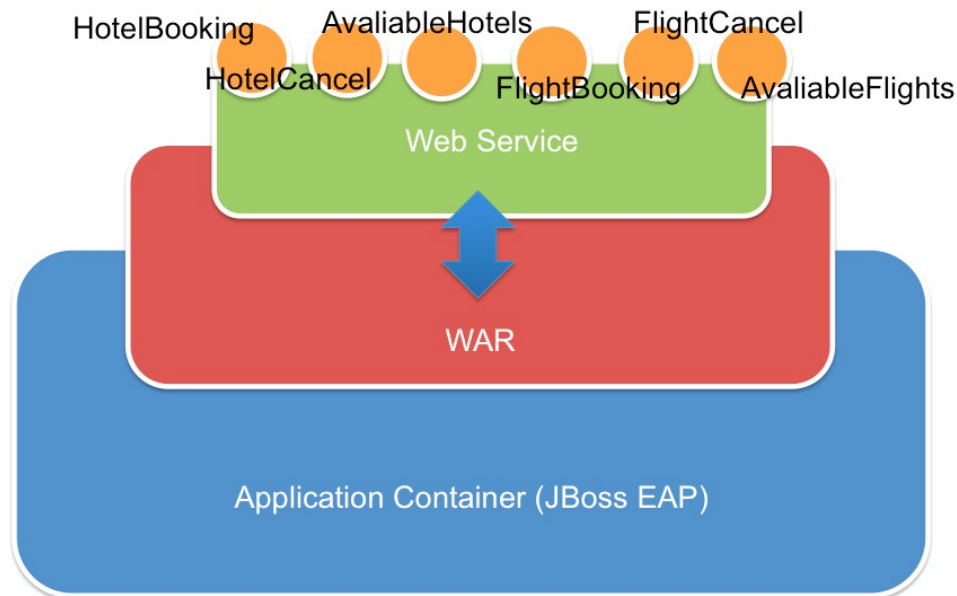
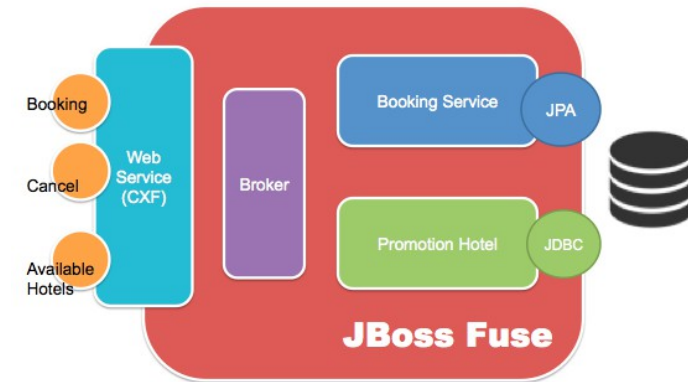


JBoss BPM Travel Agency Micro-Services

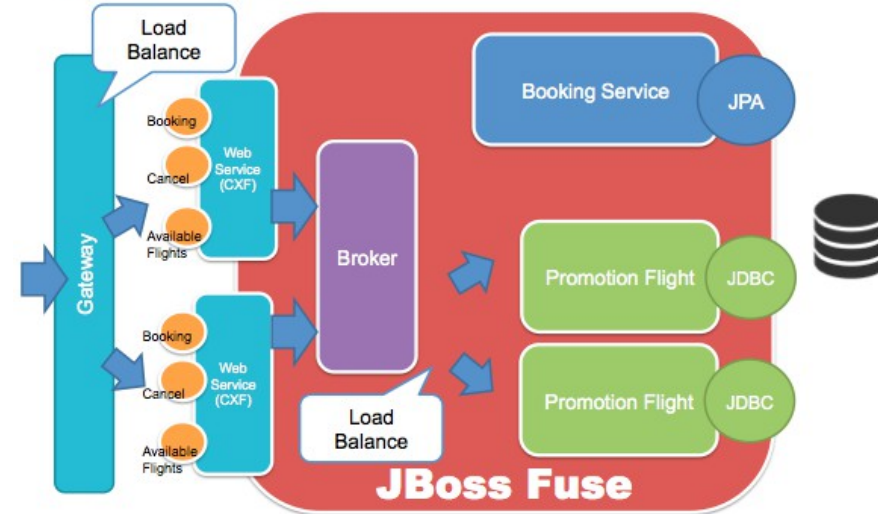
Flight Booking Service



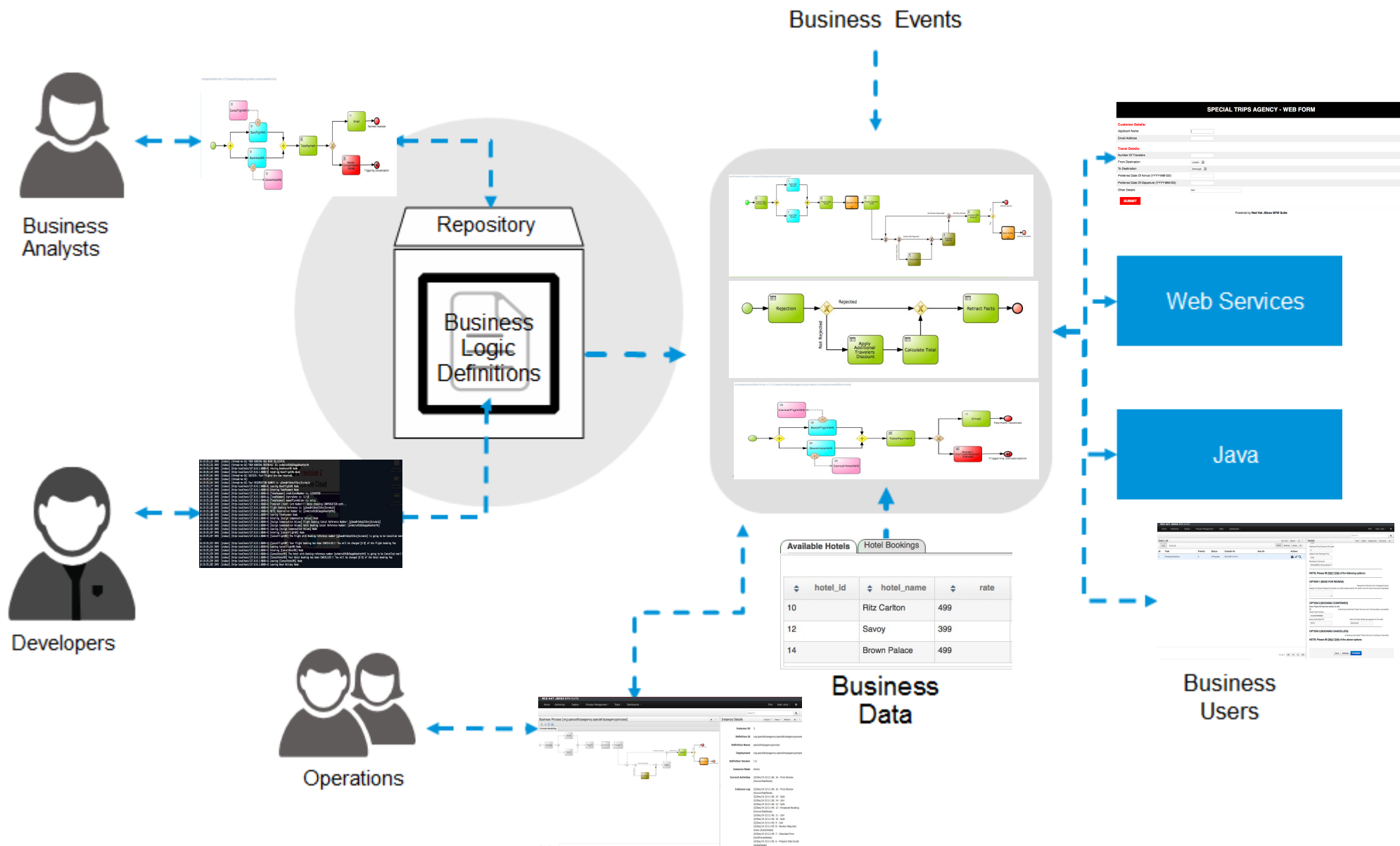
Hotel Booking Service



Scale out service



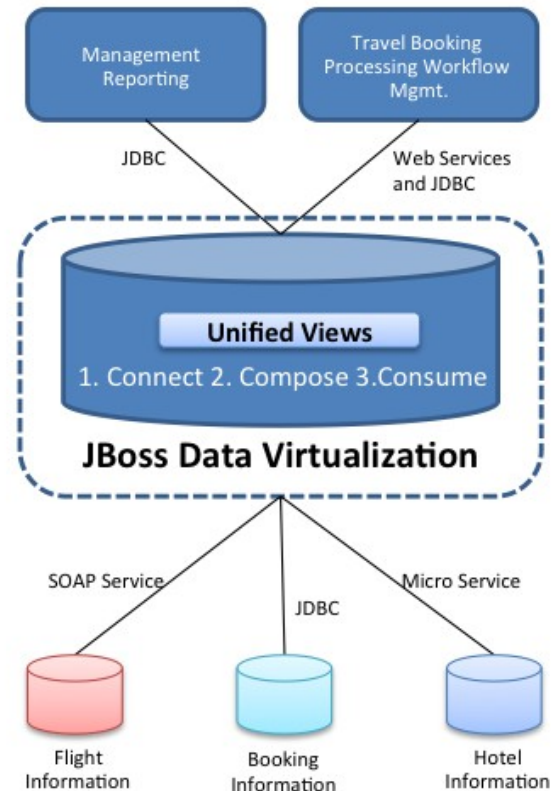
Components with BPM data integration



JBoss BPM Travel Agency

Single View of Bookings Processing

- Situation / Needs:
 - Management seeks visibility and control, while bookings operations needs 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/jbossemocentral/bpms-travel-agency-demo>
 - <http://www.schabell.org/2015/01/how-to-fly-with-jboss-bpm-travel-agency.html> (4 part video series)
- JBoss BPM Integration Stories:
 - <https://github.com/jbossemocentral/bpms-fuse-travel-agency-integration-demo>
 - <https://github.com/jbossemocentral/bpms-dv-travel-agency-integration-demo>
- JBoss BPM workshops:
 - <http://bpmworkshop-onthe.rhcloud.com>



RED HAT® JBOSS®
MIDDLEWARE

Questions?

Eric D. Schabell
JBoss Technology Evangelist (Integration & BPM)
@ericschabell | schabell.org