

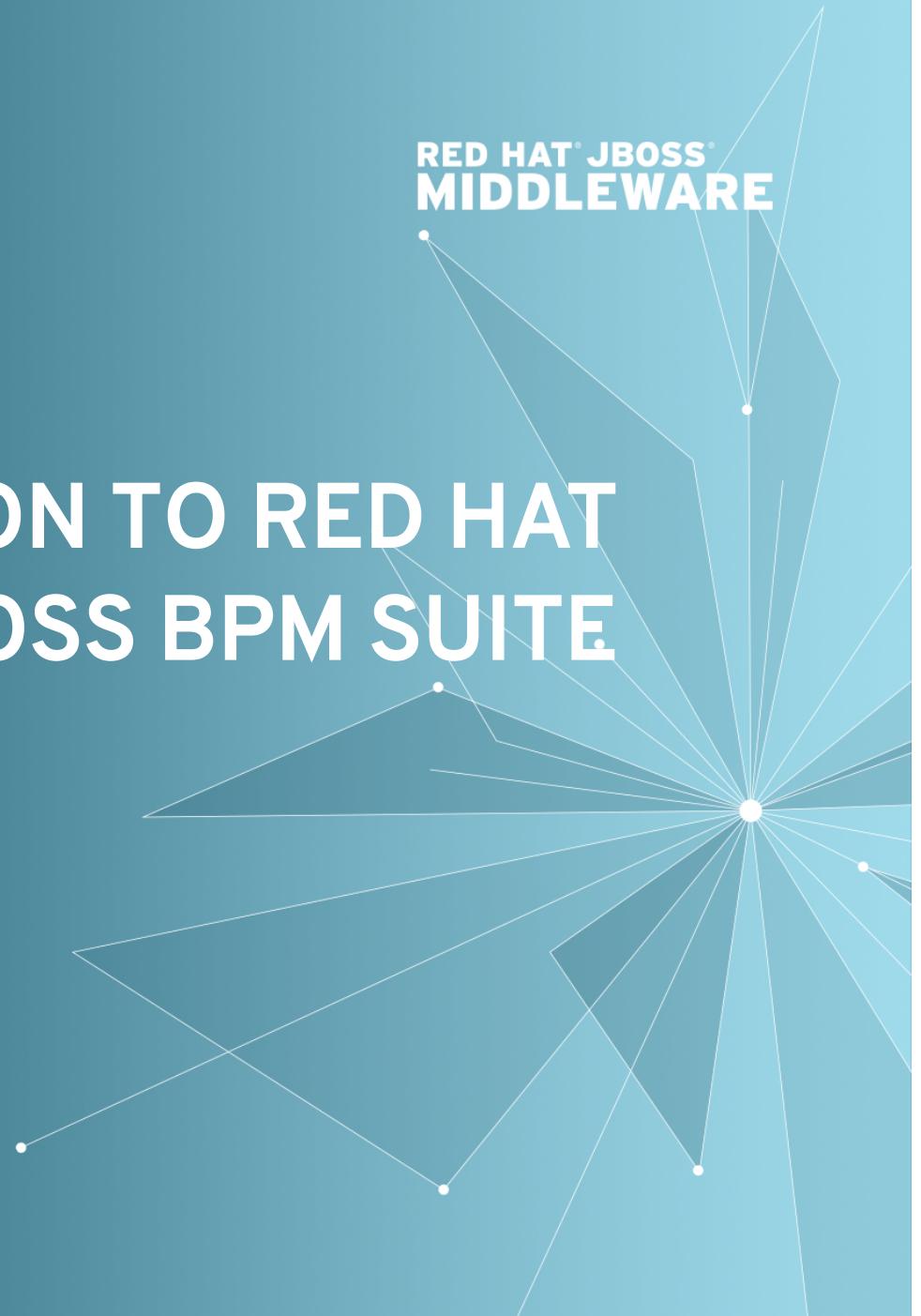


redhat.

RED HAT® JBOSS®  
MIDDLEWARE

# INTRODUCTION TO RED HAT JBOSS BPM SUITE

Michelle Davis  
Sr. Solution Architect  
September 10, 2015



# WELCOME TO RED HAT

We offer a range of mission-critical software and services covering:

MIDDLEWARE

OPERATING SYSTEM

CLOUD

STORAGE

VIRTUALIZATION

## HOW WE DO IT

We develop everything via community-powered innovation.

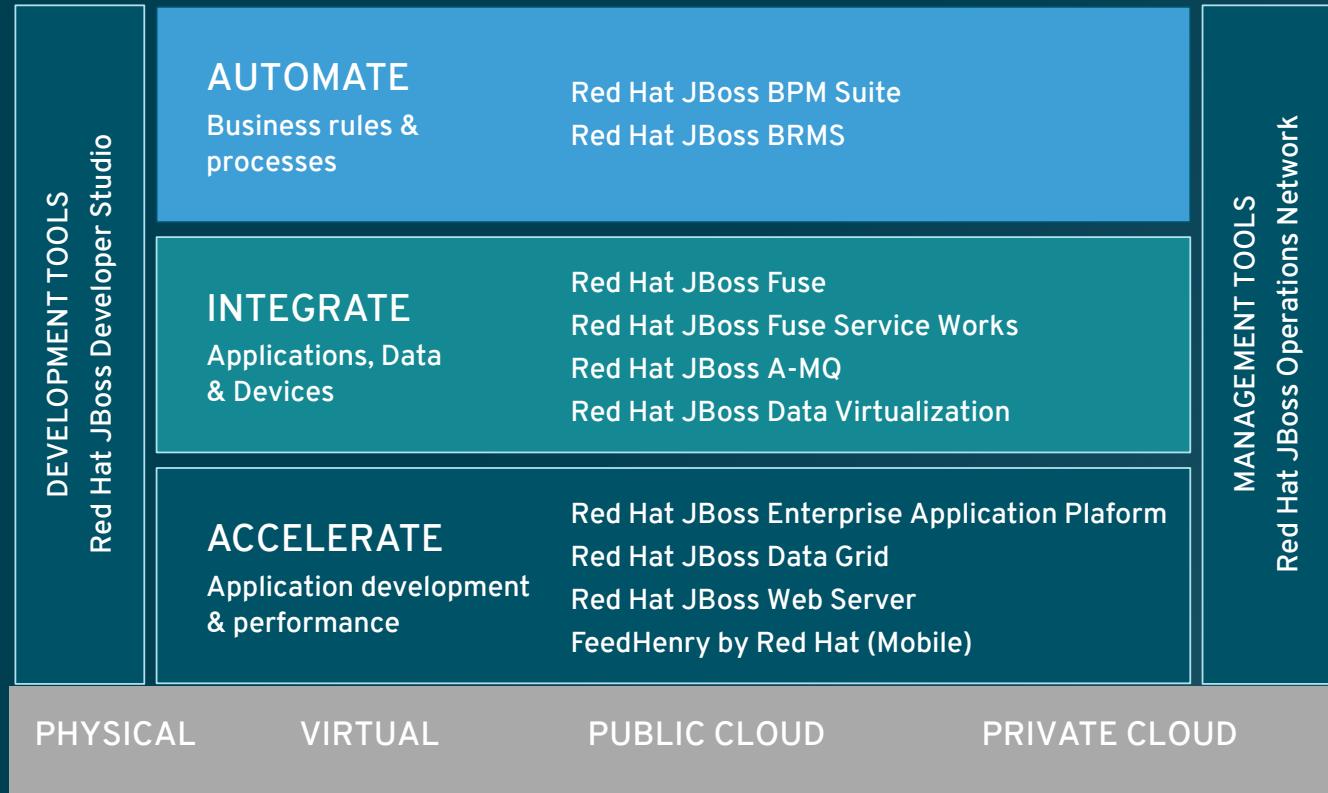
Shared development reduces costs and accelerates innovation.

Open collaboration offers products that truly meet customers' requirements.

## THE BENEFITS

- ✓ Flexibility
- ✓ Faster technology innovation
- ✓ Better quality
- ✓ Better price/performance
- Alignment to your needs

# INNOVATE FASTER, IN A SMARTER WAY



**FASTER INNOVATION** – improve productivity for greater differentiation

**LIGHTER WEIGHT** – unlock the value of existing IT assets

**LOWER COST & RISK** – increase value and reduce risk from lock-in



BPM suites exist to enable companies to improve processes.

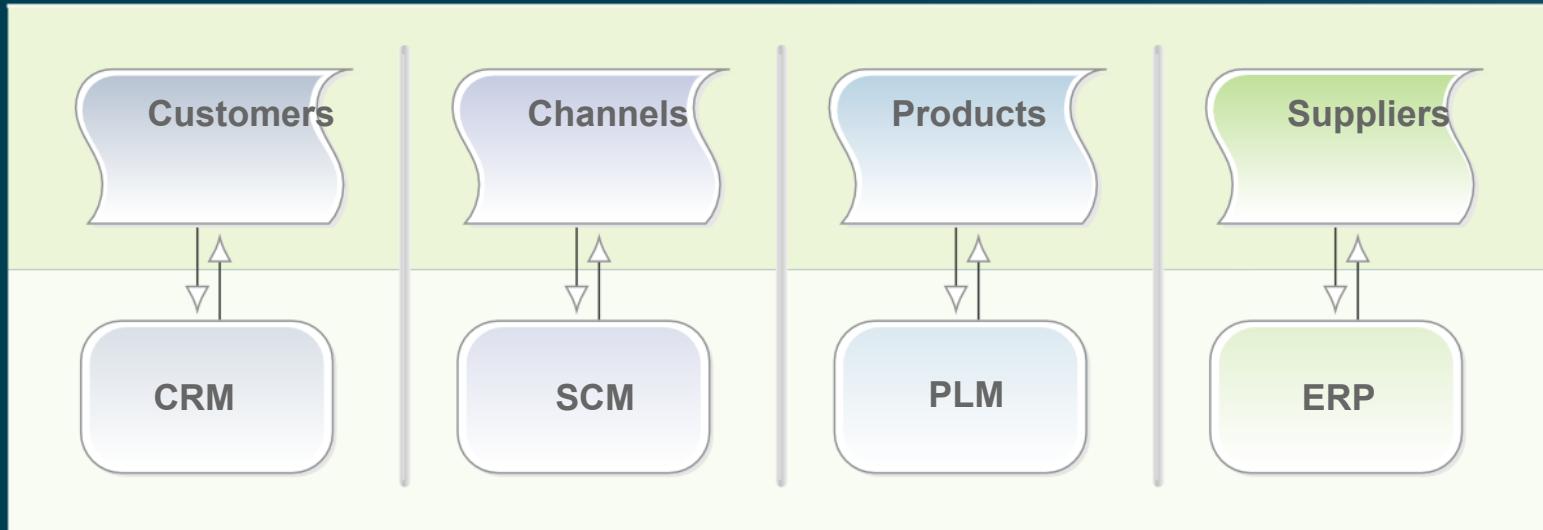
# Great Forrester Quote on BPMS

“BPMS are helping the enterprise embrace disruptive forces of change -- technological, competitive, and regulatory” – Forrester, 2013

# Things need to change – But What's the Issue?

People and systems are not connected with processes

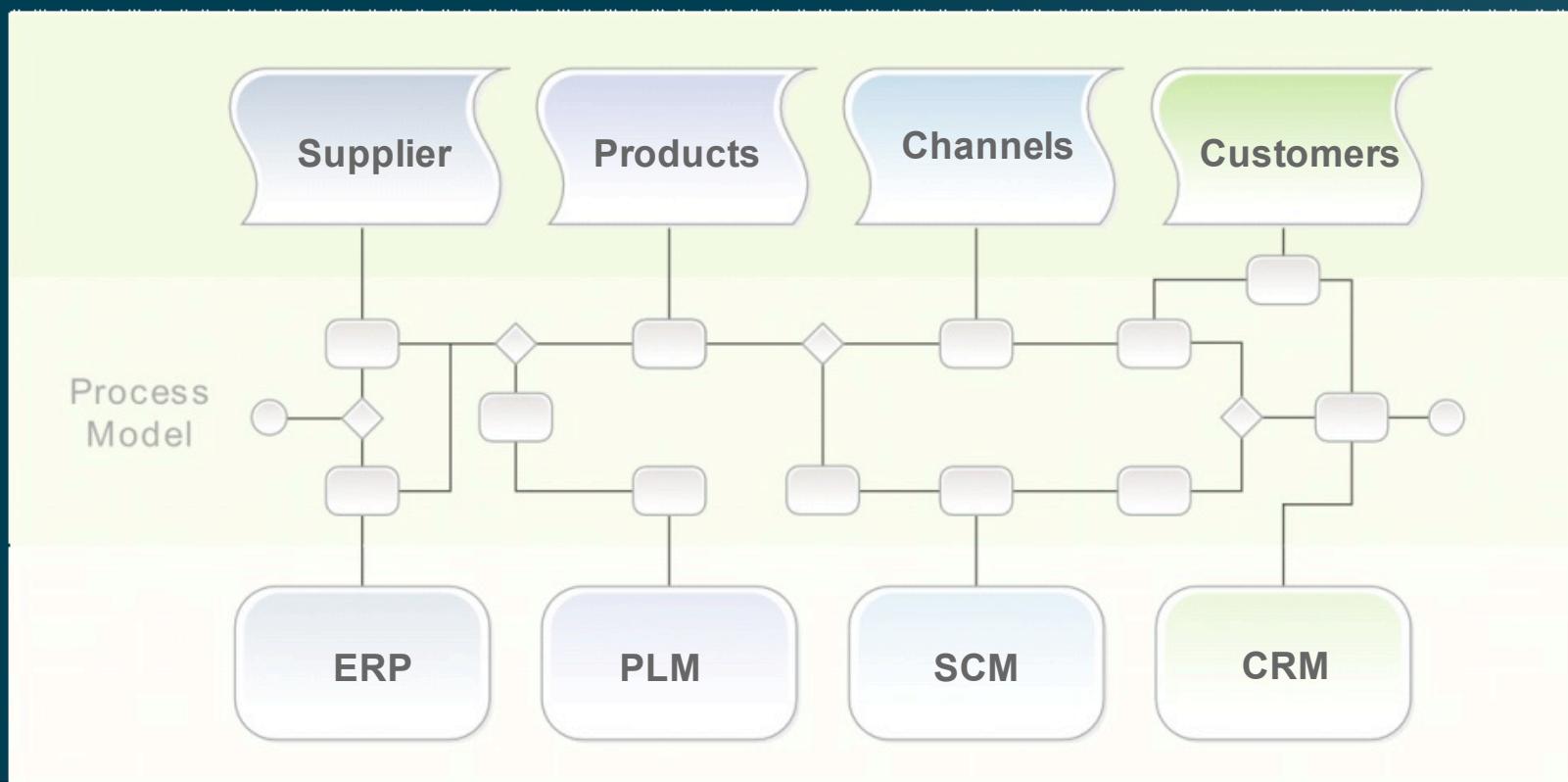
Departmental automation is not the solution...the game is now won at the enterprise level



This creates significant “white-space” between functional areas which are a source of enterprise drag, increased cost, and lost opportunity

# Driving Business Alignment

Agile businesses manage business processes that span people, systems and departments



# Becoming Process Oriented

Today



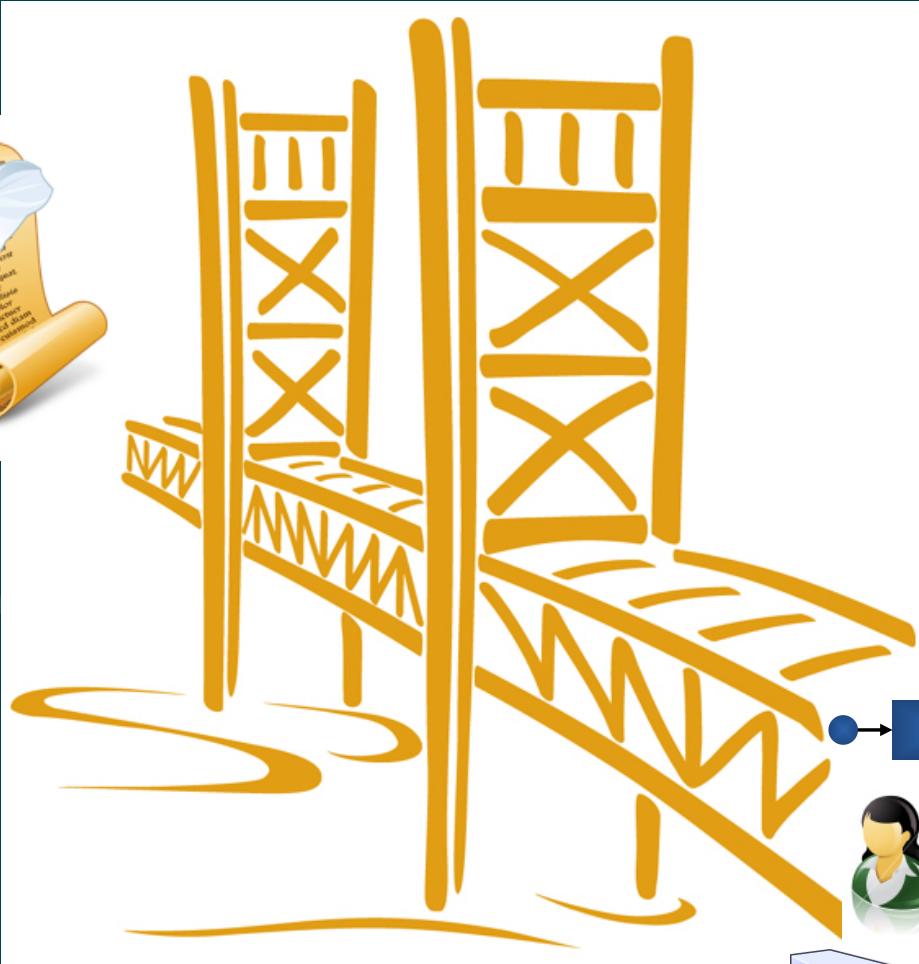
Manual

Paper ba

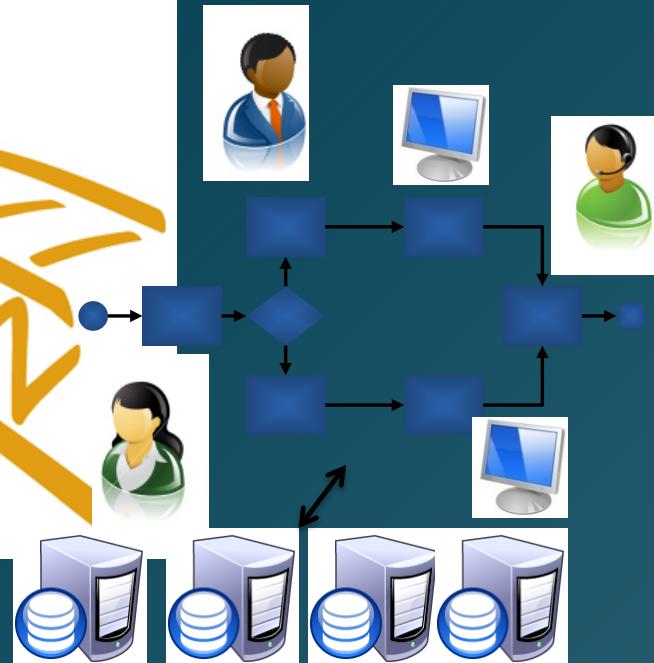
Slow

Errors

Penalties

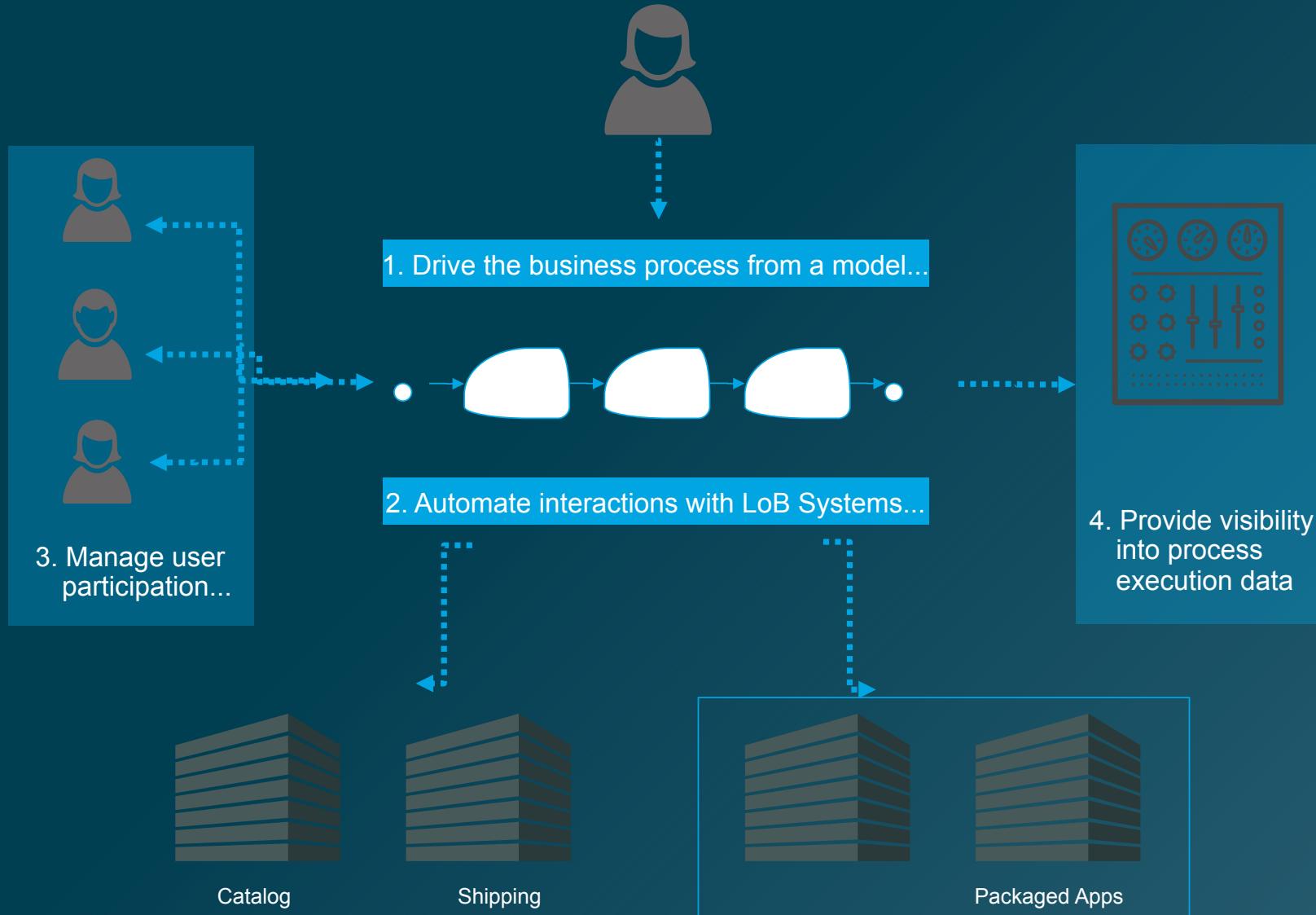


Fully Automated  
Agility  
Visibility  
Rich auditing  
SLA achieved  
Operational efficiency

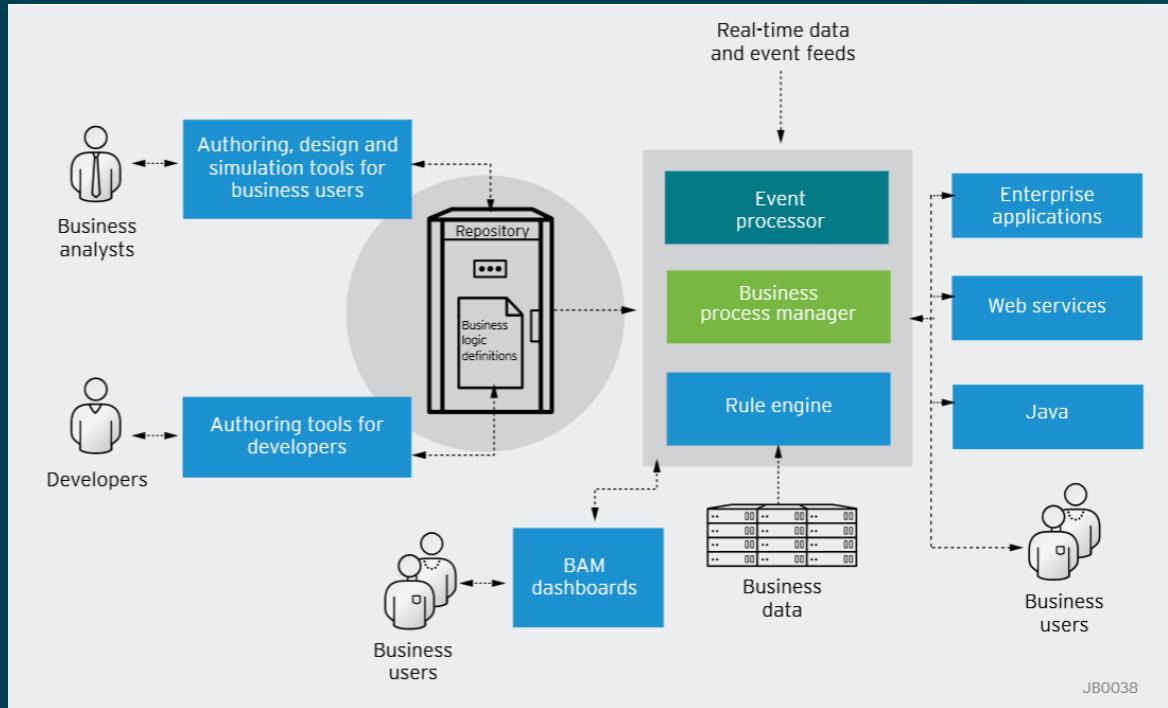


# BPM Technology

## *Business Process Management Systems*

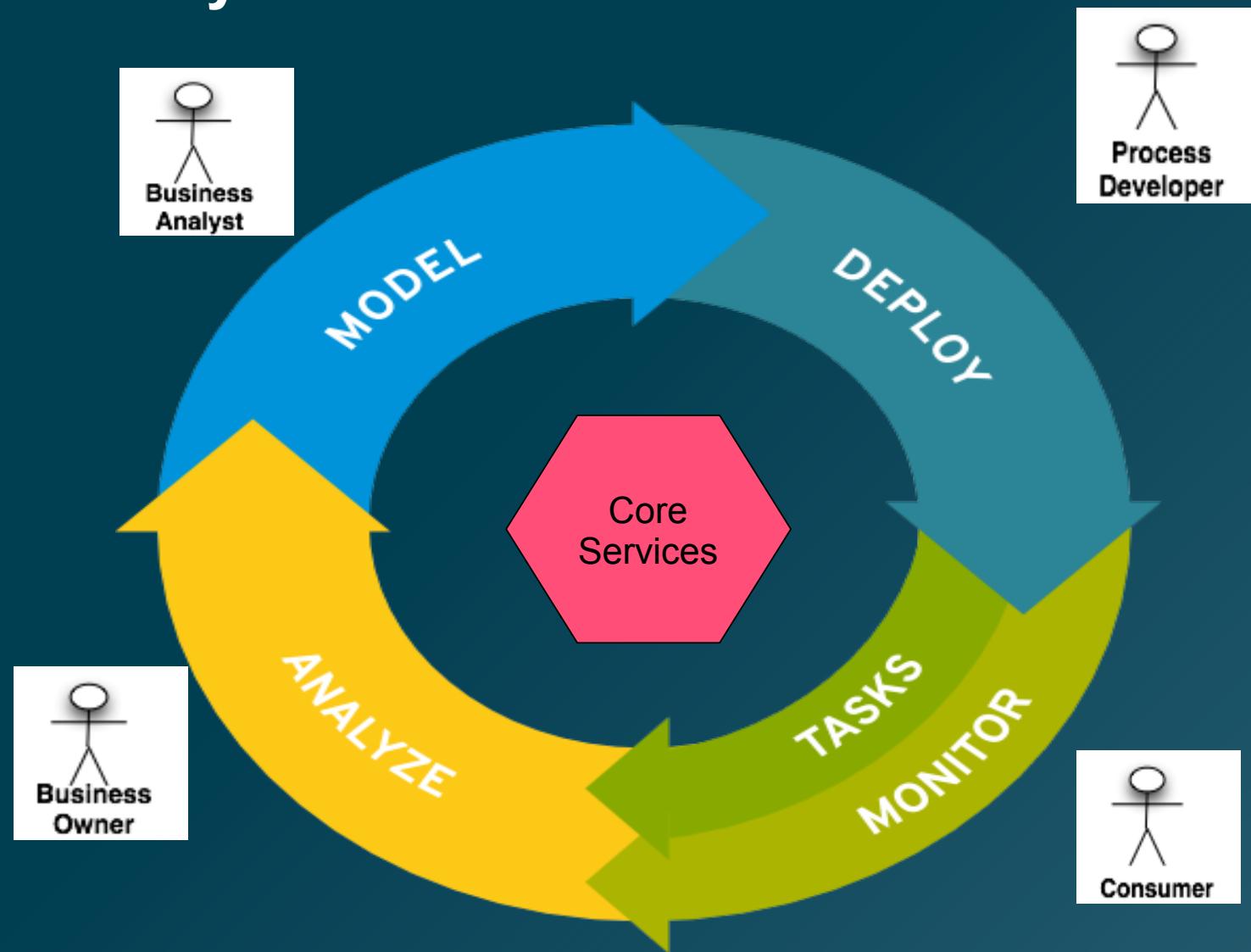


# JBOSS BUSINESS PROCESS MANAGEMENT SUITE

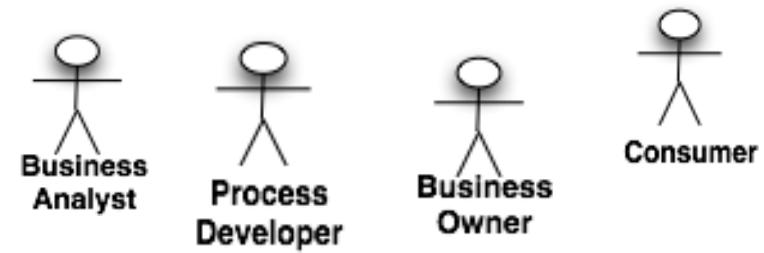
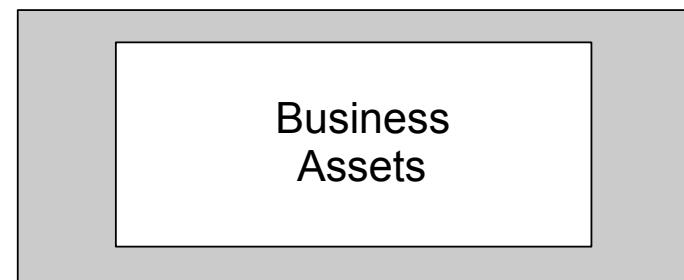
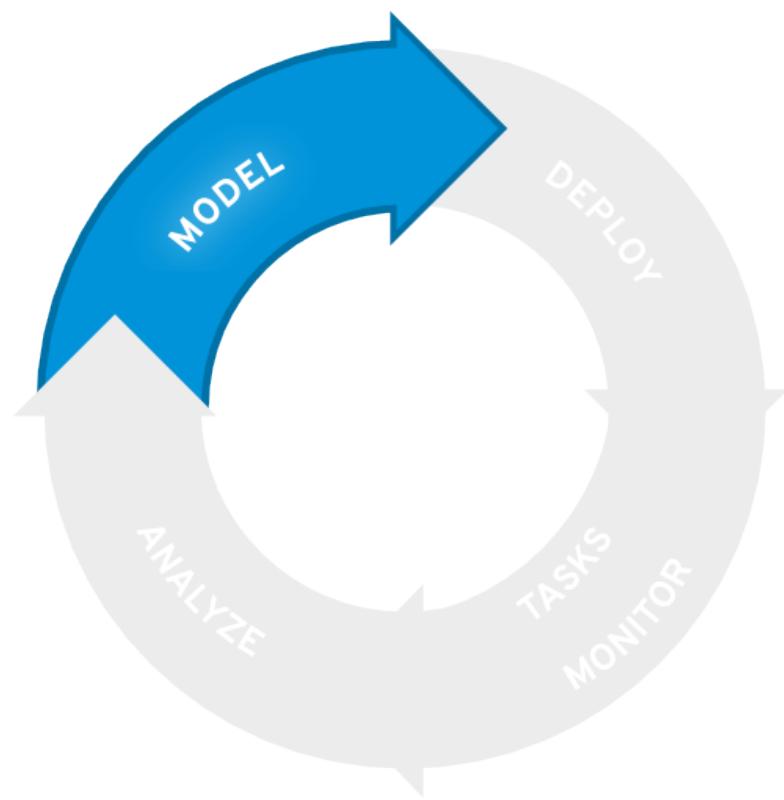


- Enables business and IT users to **document, manage, and automate business process and policies**
- Includes all the **capabilities of BRMS** along with comprehensive support for business process modeling, execution, and monitoring
- Drag-and-drop BPMN 2.0 modeling for ease of implementation

# BPM Lifecycle



# BPM Lifecycle - Model



# Model: Business Central

The screenshot shows the Red Hat JBoss BPM Suite interface. The top navigation bar includes links for Home, Authoring, Deploy, Process Management, Tasks, Dashboards, Find, and a user dropdown for 'helleworlduser'. A search bar with a magnifying glass icon is also present.

## Welcome to JBoss BPM Suite 6

A unified platform for building Realtime Intelligent Business Process Management Solutions.  
One place to model, deploy, execute, manage and monitor business activities.

### Model

Create Projects and Model Business Assets

### Deploy

Create and Manage Deployments

### Manage Processes

View and Manage Process States

### Manage Tasks

View and Take Actions on Assigned Tasks

### Monitor

Monitor Business Activity and Track KPIs

### Design Business Assets:

- Business Processes
- Data Models
- User Forms
- Business Rules
- Simulations

We provide an all-in-one framework for organizing and deploying projects:

#### Organizations

Organize workspaces by group or department. Setting up groups in BRMS enables broad-level access management.

#### Repositories

All projects and assets are stored in Maven repositories (every Organizational Unit needs to have at least one repository).

#### Projects

A project is a collection of all the assets and information needed to build a complete functional system.

#### Packages

All business assets are stored in package folders. Assets that work together belong in the same package.

An example project structure:

#### Retail Banking

#### Loan Processing

#### New Mortgages

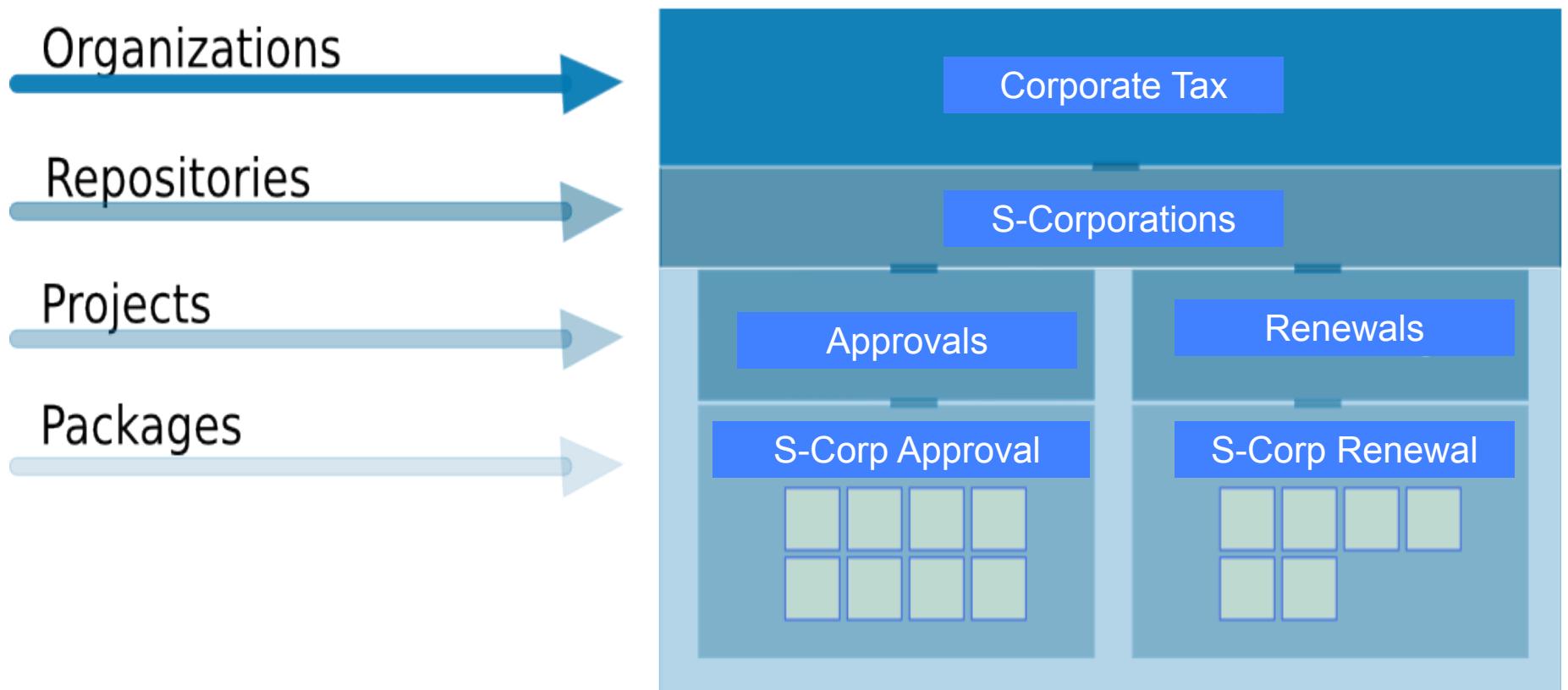
#### Mortgage Approval

#### Refinancing

#### Refi Approval



# Model: Project Structure



# Model: Data Modeler

MortgageApplication	<span style="color: blue;">+ Create</span>
Identifier	
Appraisal	<span style="color: red;">×</span>
Mortgage Applicant	<span style="color: red;">×</span>
Mortgage Application	<span style="color: white;">+ Create</span>
Property	<span style="color: red;">×</span>
Validation Error	<span style="color: red;">×</span>

Mortgage Application

+ Create

**Create new field**

\*Id

\*Type

Label

+ Create

**Mortgage Application (com.redhat.bpmns.examples.mortgage.Application)**

Position	Identifier	Label	Type	
4	amortization	Mortgage Amortization	Integer	<span style="color: red;">×</span>
0	applicant	Applicant	<span style="color: blue;">①</span> Mortgage Applicant	<span style="color: red;">×</span>
2	appraisal	Appraisal	<span style="color: blue;">①</span> Appraisal	<span style="color: red;">×</span>
6	apr	Mortgage Interest APR	Double	<span style="color: red;">×</span>
3	downPayment	Down Payment	Integer	<span style="color: red;">×</span>
5	mortgageAmount	Mortgage Amount	Integer	<span style="color: red;">×</span>
1	property	Property	<span style="color: blue;">①</span> Property	<span style="color: red;">×</span>
7	validationErrors	Validation Errors	<span style="color: blue;">①</span> Validation Error [0..N]	<span style="color: red;">×</span>

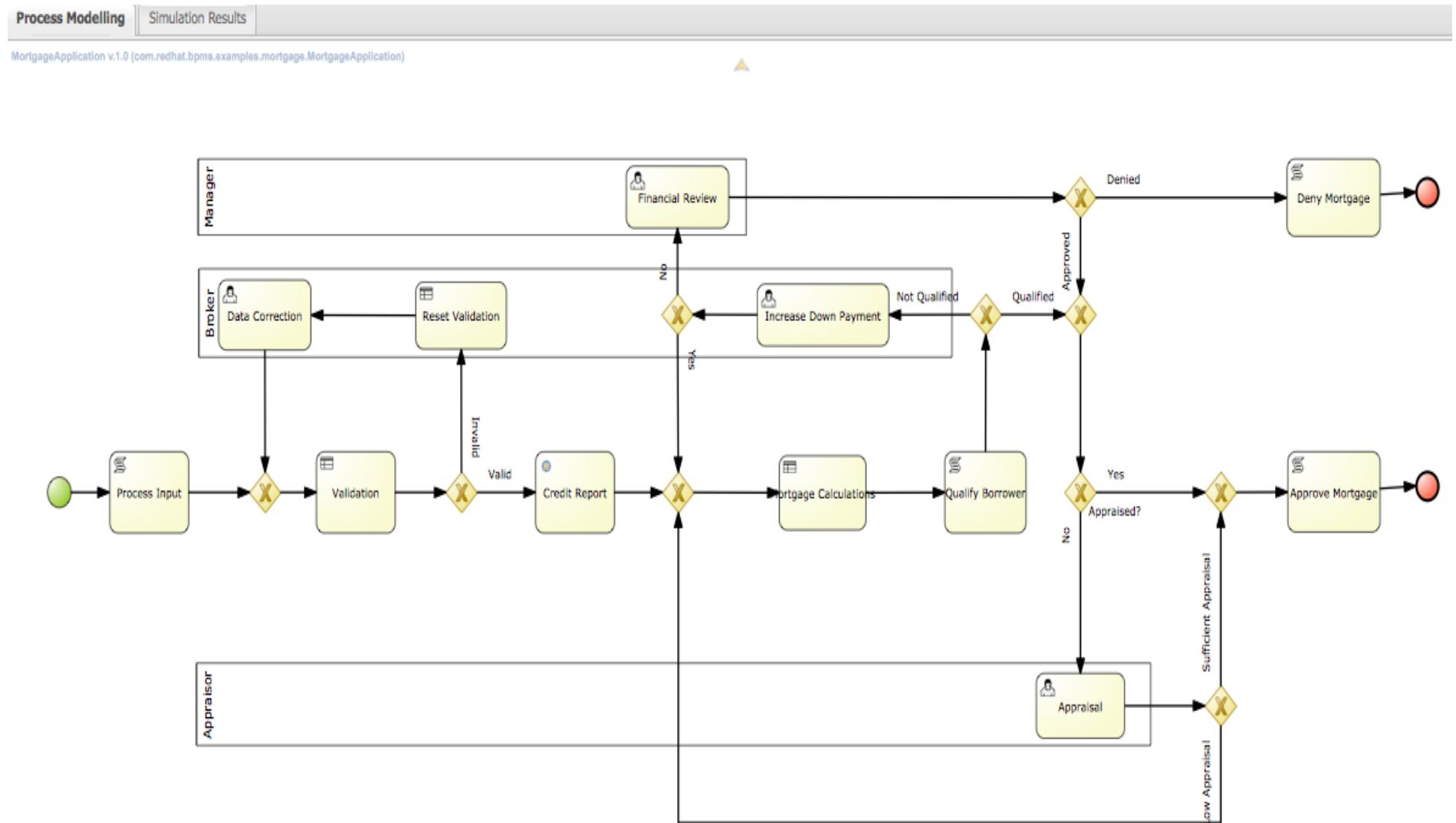
Data object

+ Create

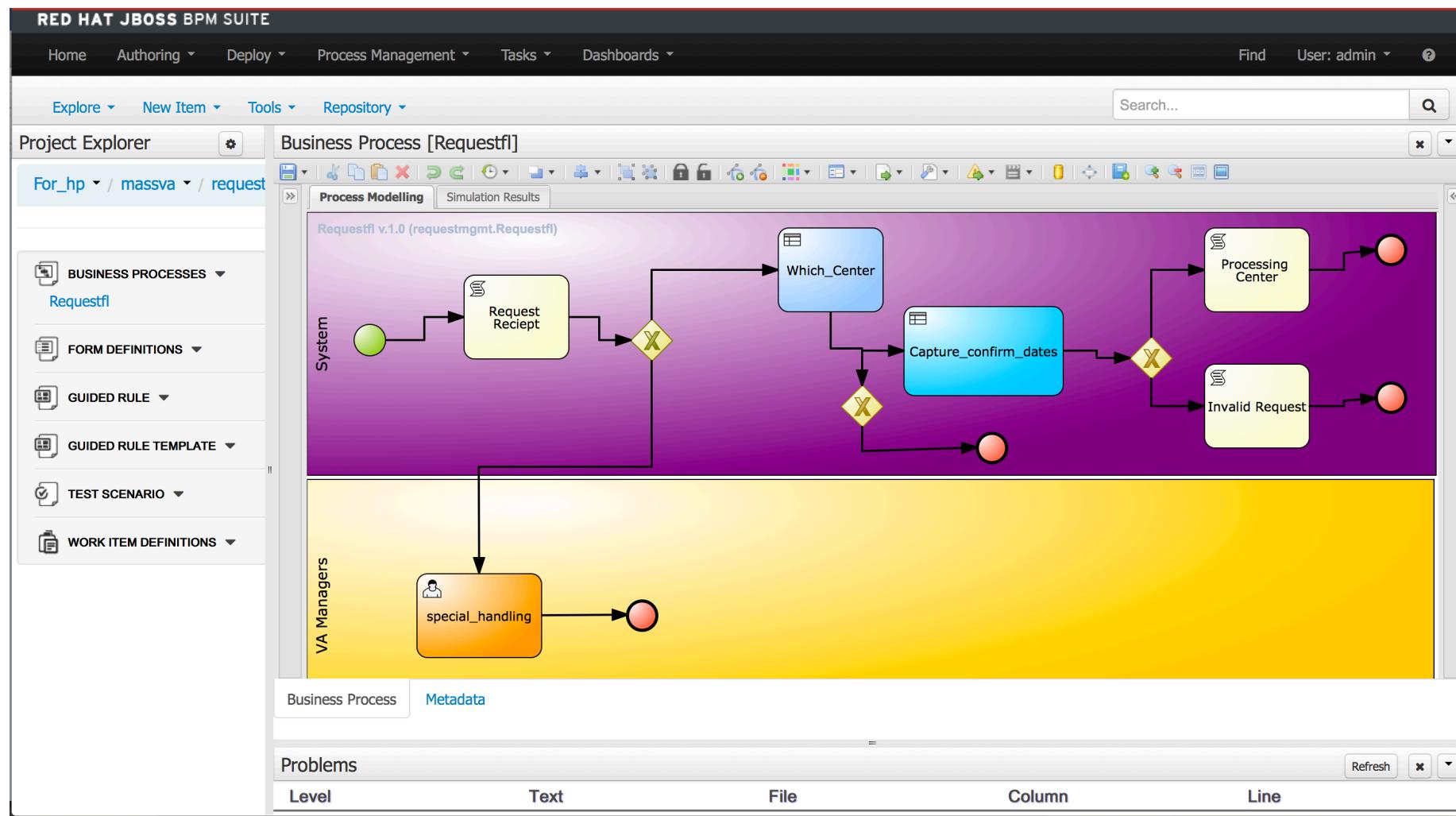
Field



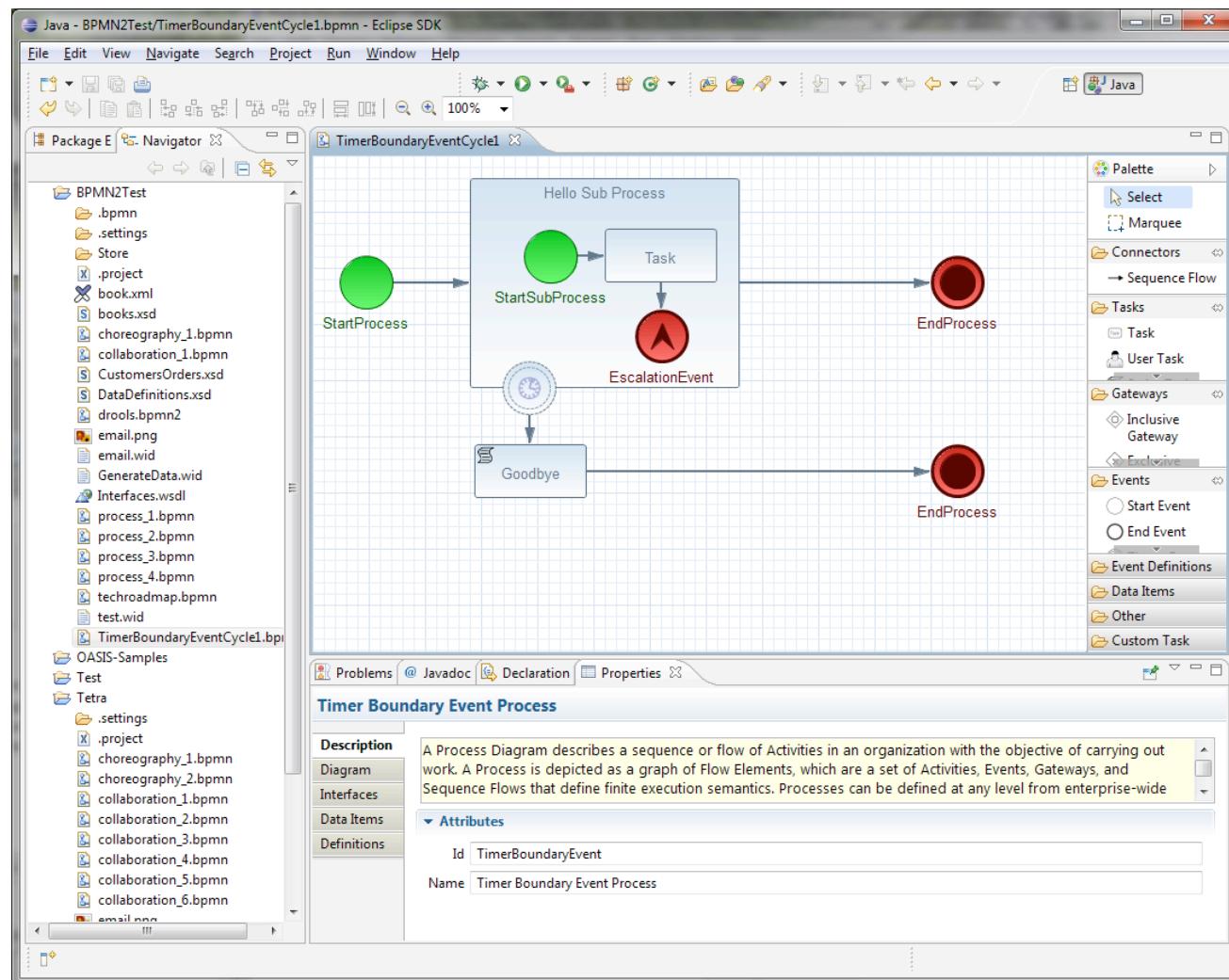
# Model: Process Modeler



# Browser Based Design & Development



# Eclipse Based IDE for Developers



# Model: Form Designer

## Form Modeler [DataCorrection-taskform.form]

Form data origin | Add fields by origin | **Add fields by type** | Form properties

HTML label		10	50	100	150	200	250	300	350	400	450	500	550	600	650
Separator		0													
Simple subform		10	50	100	150	200	250	300	350	400	450	500	550	600	650
Multiple subform		0													
Short text		10	50	100	150	200	250	300	350	400	450	500	550	600	650
Long text		0													
Float		10	50	100	150	200	250	300	350	400	450	500	550	600	650
Decimal		0													
BigDecimal		10	50	100	150	200	250	300	350	400	450	500	550	600	650
BigInteger		0													
Short		10	50	100	150	200	250	300	350	400	450	500	550	600	650
Integer		0													
Long integer		10	50	100	150	200	250	300	350	400	450	500	550	600	650
E-mail		0													
CheckBox		10	50	100	150	200	250	300	350	400	450	500	550	600	650
Rich text		0													
Timestamp		10	50	100	150	200	250	300	350	400	450	500	550	600	650
Short date		0													
Link		10	50	100	150	200	250	300	350	400	450	500	550	600	650

● Applicant Name  
● Address  
● Social Security Number  
● Income  
● Property Sale Price  
● Down Payment  
● Amortization



# Model: Rule Authoring

**Spreadsheet**

	J	K	L
When	Allocate to Team	Stop processing	Log reason
	Team Red	Stop processing	The claim was catastrophic

**Decision Table**

#	Description	salience	name	age	age
1		1	Bill	30	12345
2		2	Ben	<otherwise>	12345
3		3	Weed	40	12345
4		4	<otherwise>	50	12345

**Guided Editor**

Save changes | Copy | Archive

WHEN

- LoanApplication [application]
- Applicant
- age is less than 21

THEN

- Set value of application approved false explanation
- Retract application

(options)

- Attributes: salience 10

**Rule Templates**

Status: [Draft]

File Edit Source

Attributes Edit

Load Template Data

WHEN

There is an Applicant with:

- age less than \$max\_age
- age greater than or equal to \$min\_age
- creditRating equal to \$cr

THEN

- There is a LoanApplication [\$a]
- Modify value of LoanApplication [\$a] approved false

**DRL**

```
rule "When there is a fire turn on the sprinkler"
when
    Fire($room : room)
    $sprinkler : Sprinkler( room == $room, on == false )
then
    modify( $sprinkler ) { setOn( true ) };
    System.out.println( "Turn on the sprinkler for room " + $room.getName() );
end
```

**DSL**

Status: 'Draft'

File Edit Source

Attributes Edit

WHEN

- When the ages is less than 35
- When the applicant dates is after 01-Jan-2000
- When the applicant approval is false

THEN

- Approve the loan



# Key BPM Technology

## *Complex Event Processing Systems*



Detect events of significance to a business by recognizing time-based patterns in one or more real-time data feeds...

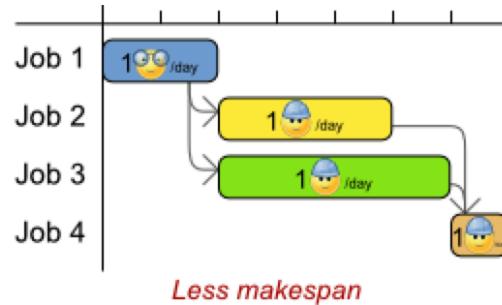
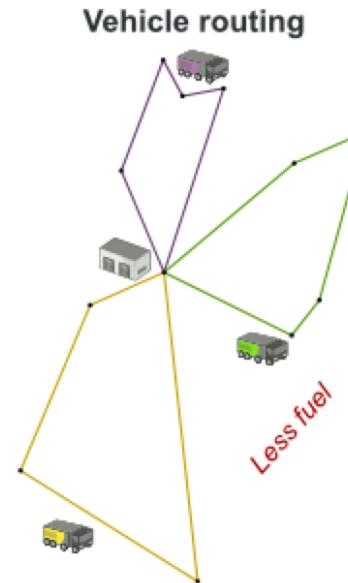


### *Benefits:*

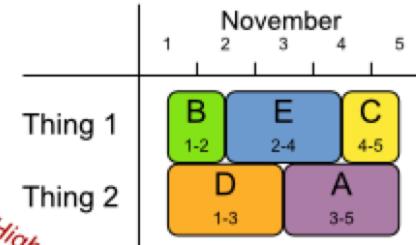
'Active decision making':  
Business makes timely  
decisions & responds  
quickly to external events



# OptaPlanner

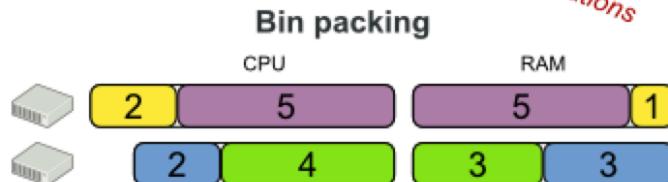


**Equipment scheduling**

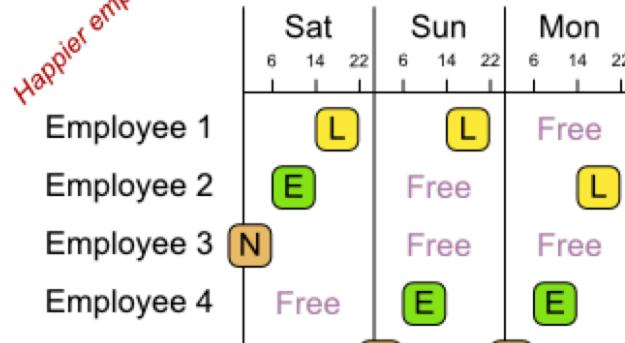


# OptaPlanner

*Do more business  
with less resources*



**Employee rostering**



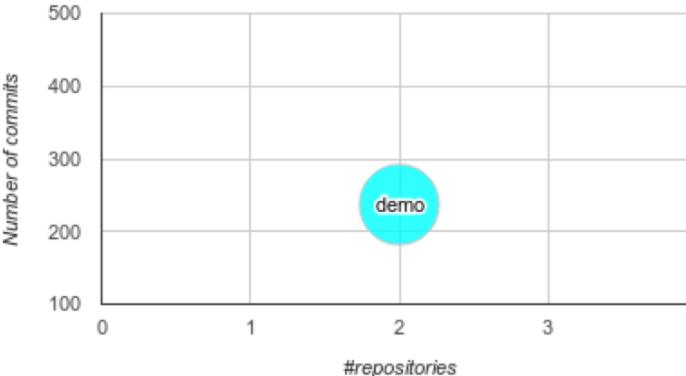
# Collaboration Dashboard

Home Authoring Deploy Servers Activity Process Management Tasks Dashboards

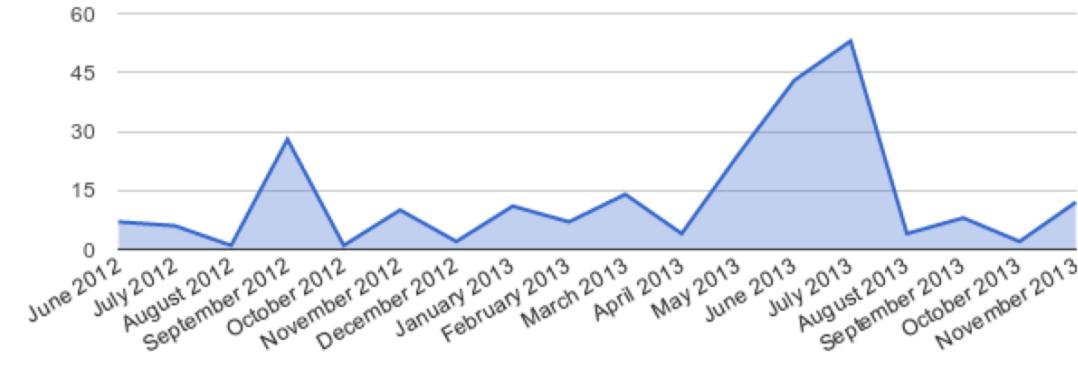
Contributors Search..

## Contributors

Commits per organization



#Commits evolution



Number of commits

#repositories

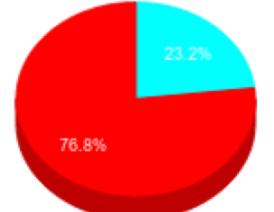
- Select Organization -

- Select Repository -

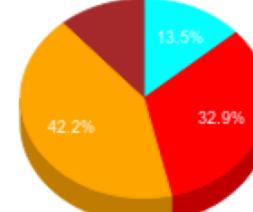
- Select Author -

- Select Top Contributor -

2012 2013

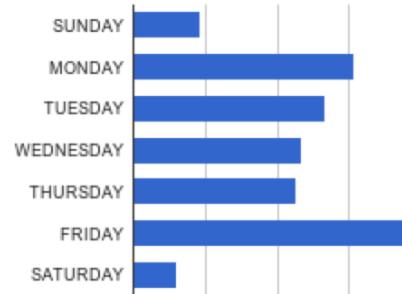


76.8% 23.2%



Q1 Q2 Q3 Q4

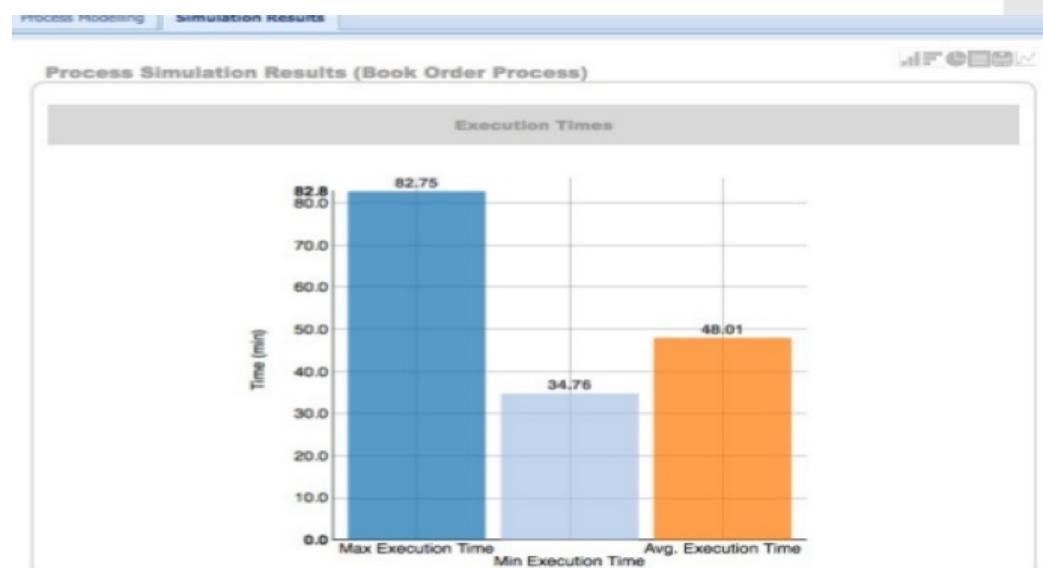
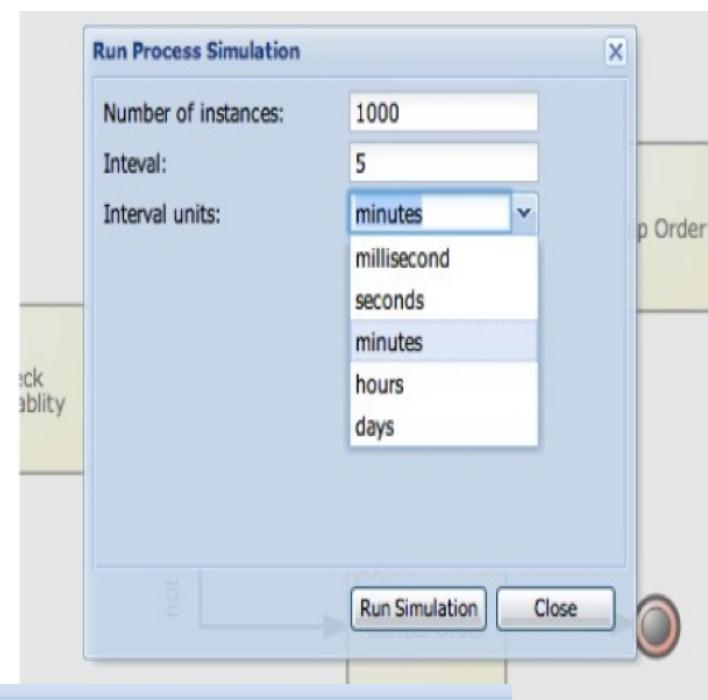
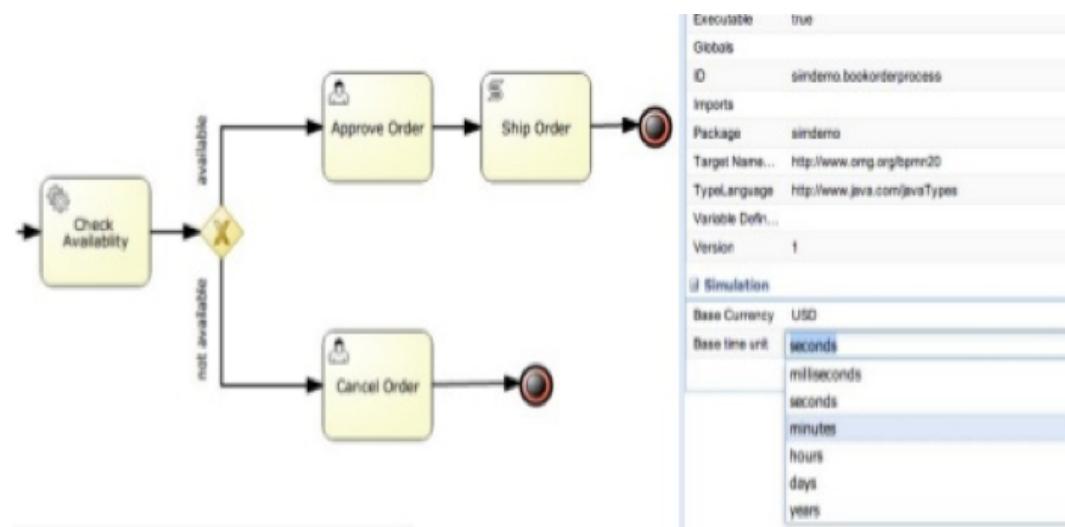
42.2% 32.9% 13.5%



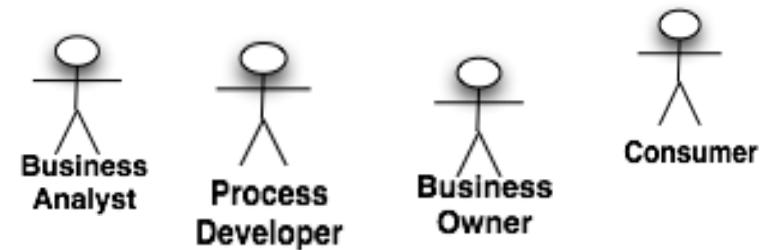
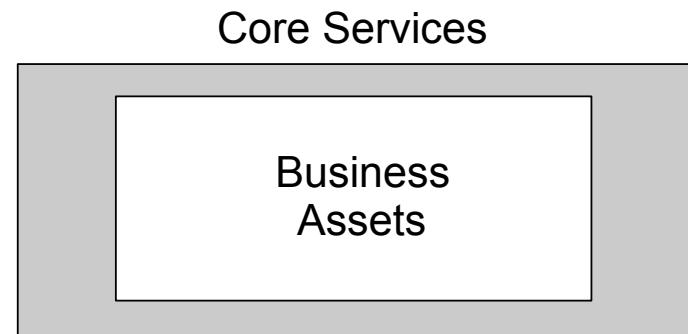
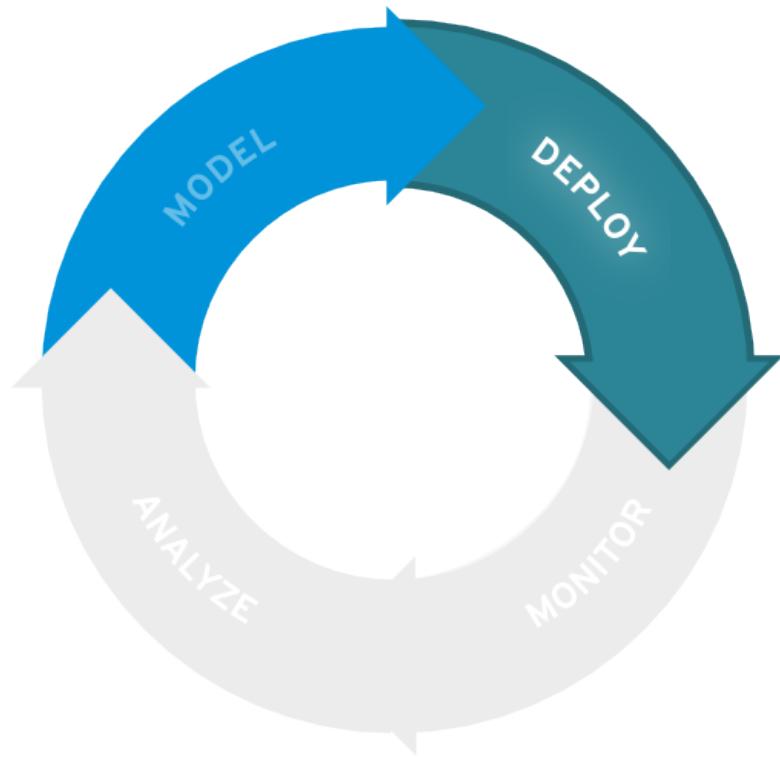
SUNDAY MONDAY TUESDAY WEDNESDAY THURSDAY FRIDAY SATURDAY

Author	Repository	Date	Commit
David Gutierrez	jbpm-playground	2013 Nov 22 17:22:35	delete {/Evaluation/.pom.xml}
Administrator User	jbpm-playground	2013 Nov 22 17:22:35	hjk

# Model: Simulation



# BPM Lifecycle - Deploy

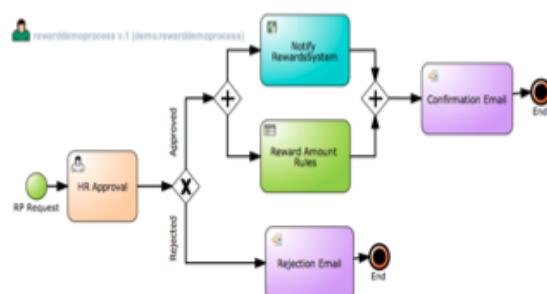


# Knowledge Management

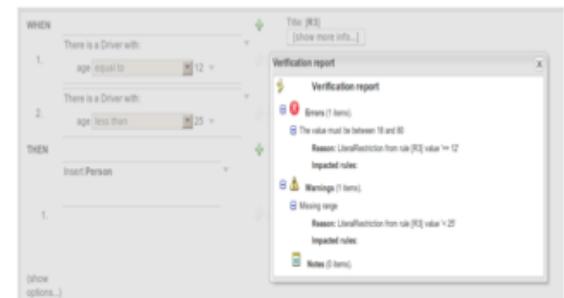
## Authoring

#	Description	min age	max age	min length of service	max length of service	holiday entitlement	
		Person [Sperson]					
		age [>=]	age [<=]	lengthOfService [>=]	lengthOfService [<=]		
1			18			27	
2		18	45		15	22	
5		45	60		30	25	
6				30		29	
7		60					

## Modeling



## Validation



Asset Management

# Business Asset Management

Repository, Version Control

## Test Scenarios

## Version Management

Version history				
Version number	Comment	Date Modified	Status	
1	my change	7/6/07 3:33 PM	Draft	
2	another change	7/6/07 3:33 PM	Draft	
3	ch ch changes	7/6/07 3:33 PM	Draft	

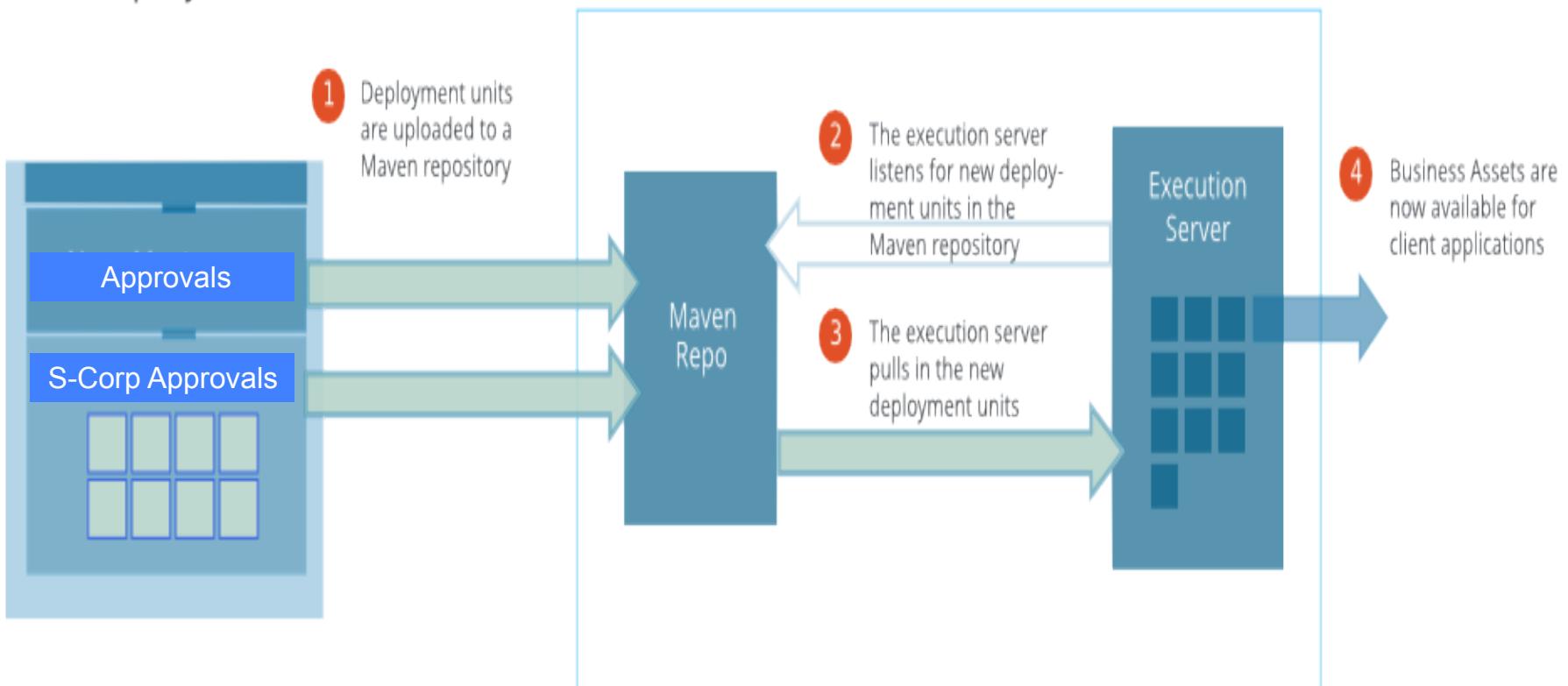
# Deploy: Packaging, Deployment Repository

- Maven Packages
- Build – Creates a kjar – Includes all assets – process definitions, classes, forms, images etc
- Deploy – Deploy to a Maven repo
- Applications can pull from Maven Repo
- Dependency management with other libraries – Share libraries
- Integrate with SRAMP – Governance in multi stage
- Configure Maven Repo location

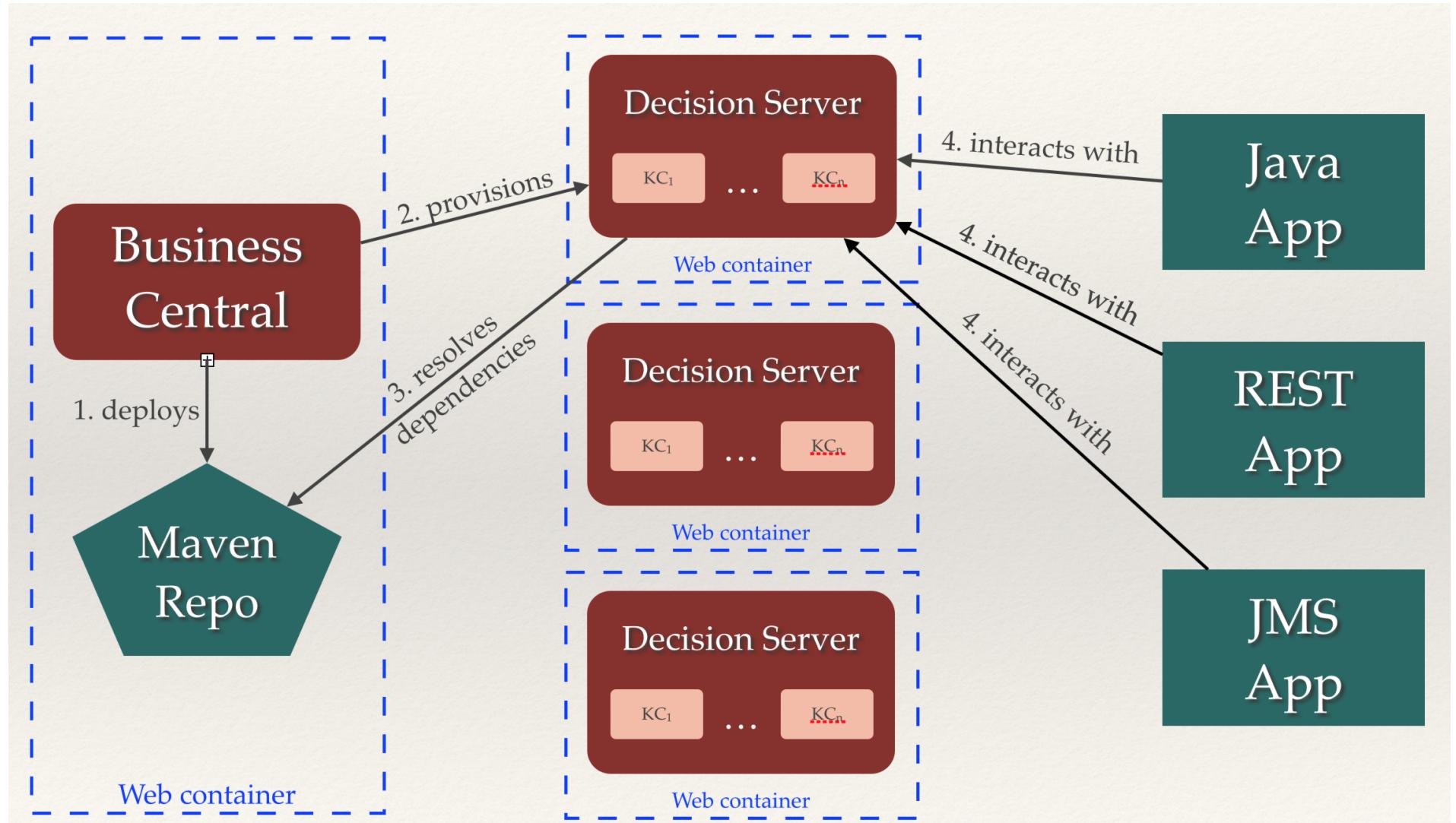


# Deploy: How Deploy Works

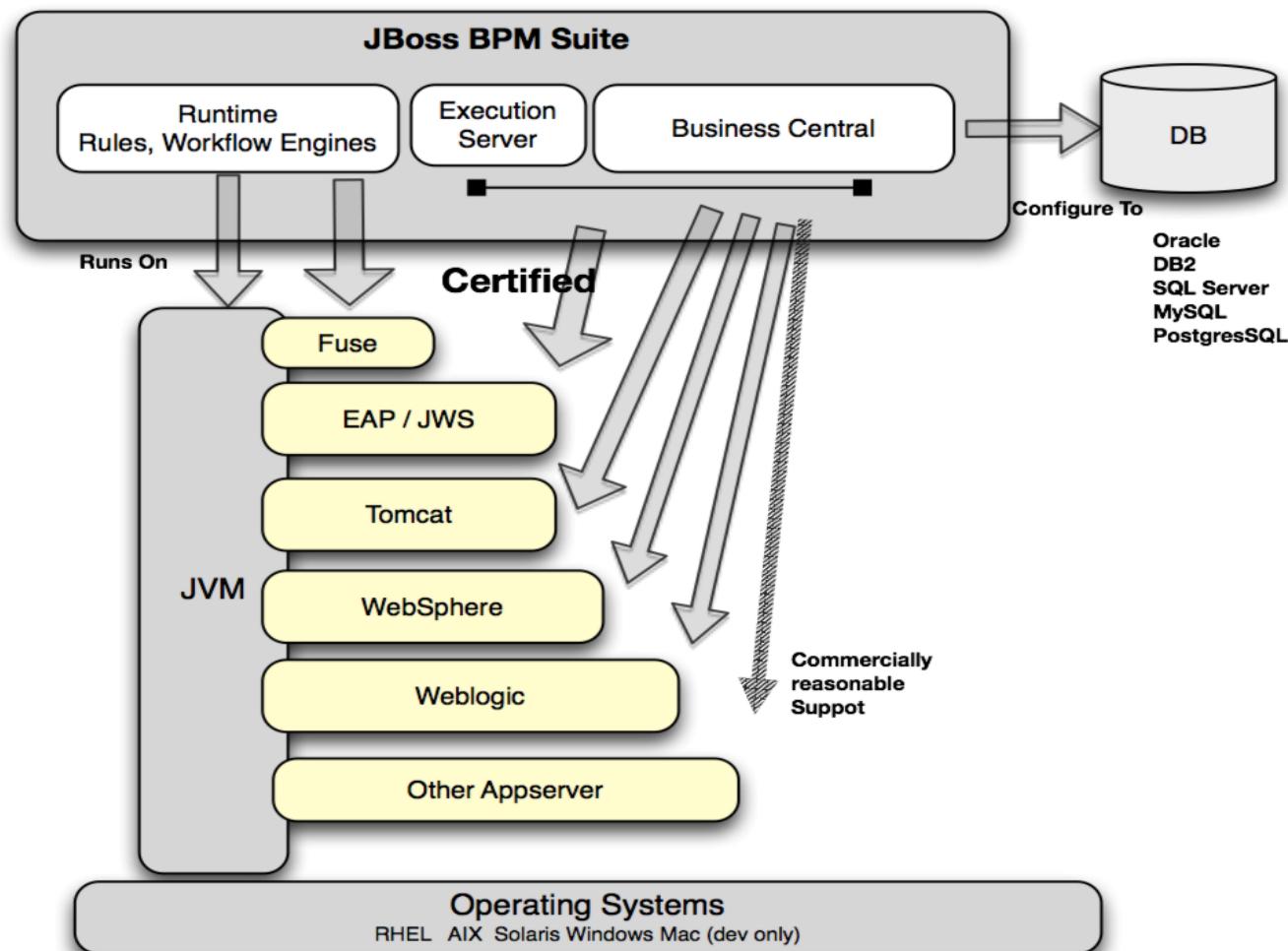
How Deployment Works:



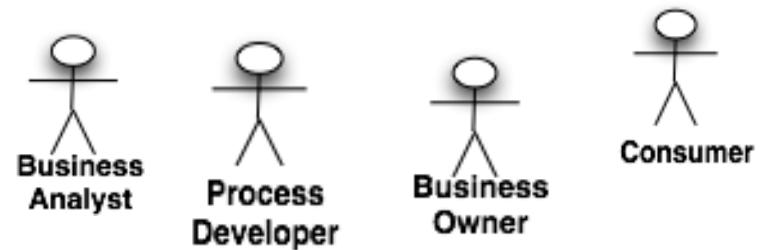
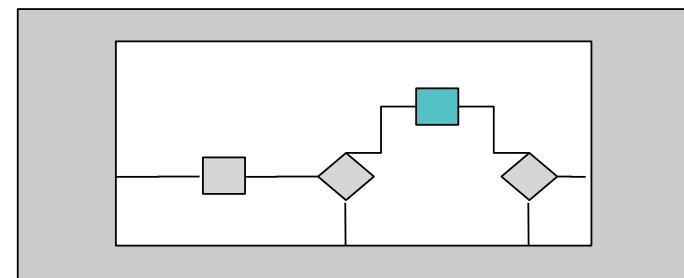
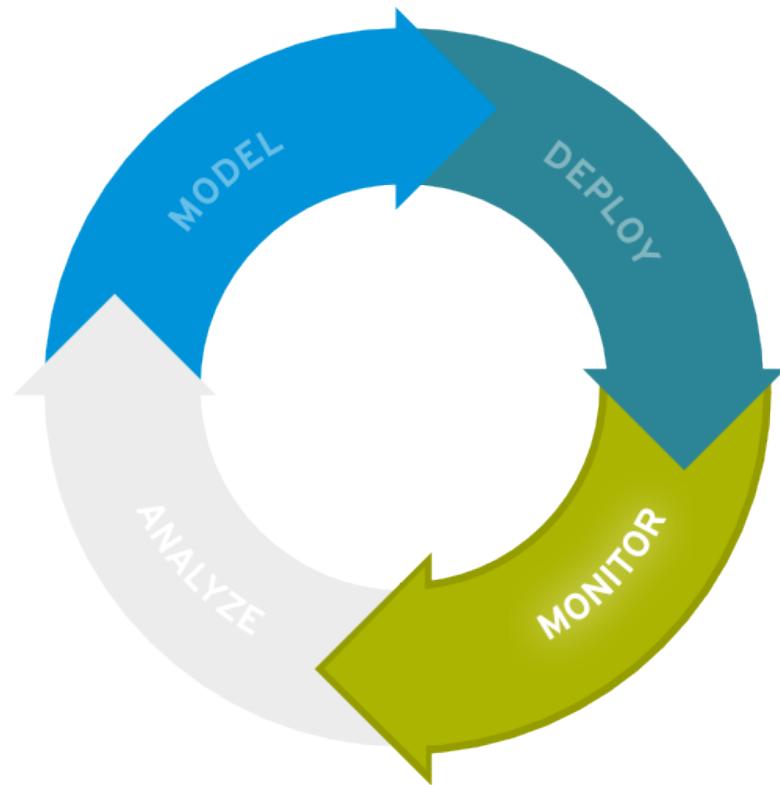
# Realtime Decision Service – Rules Execution Server



# Product Support Configurations



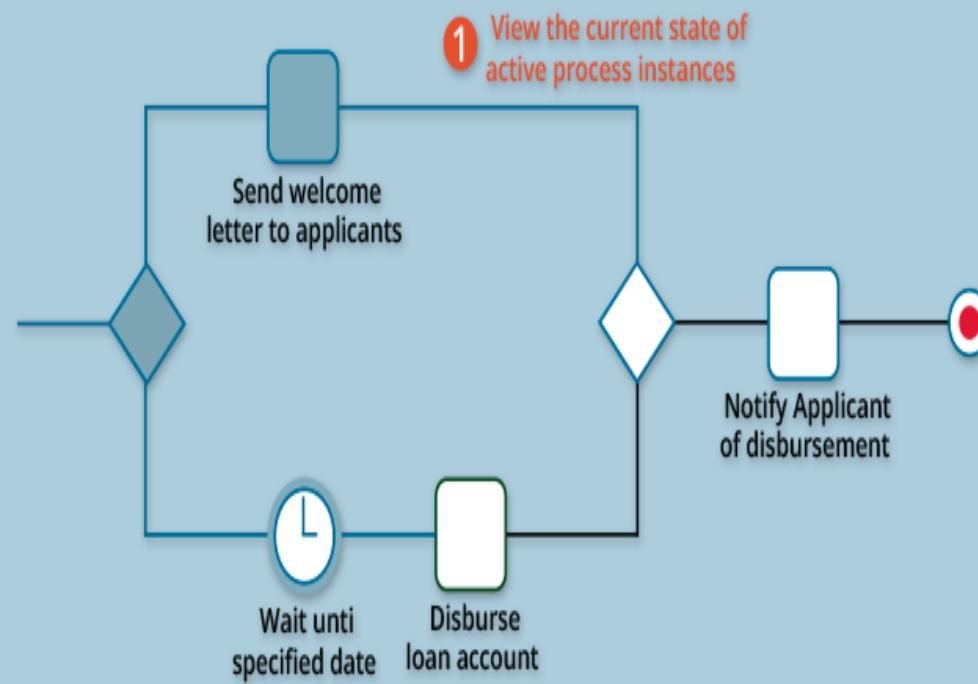
# BPM Lifecycle – Process Monitor



# Process Monitoring: Overview

## Manage Processes:

- View a List of Process Definitions
- View Process Definition Details
- Create Process Instances
- View Process Instance States
- View Process Instance Details



# Process Monitoring: Process Instance List

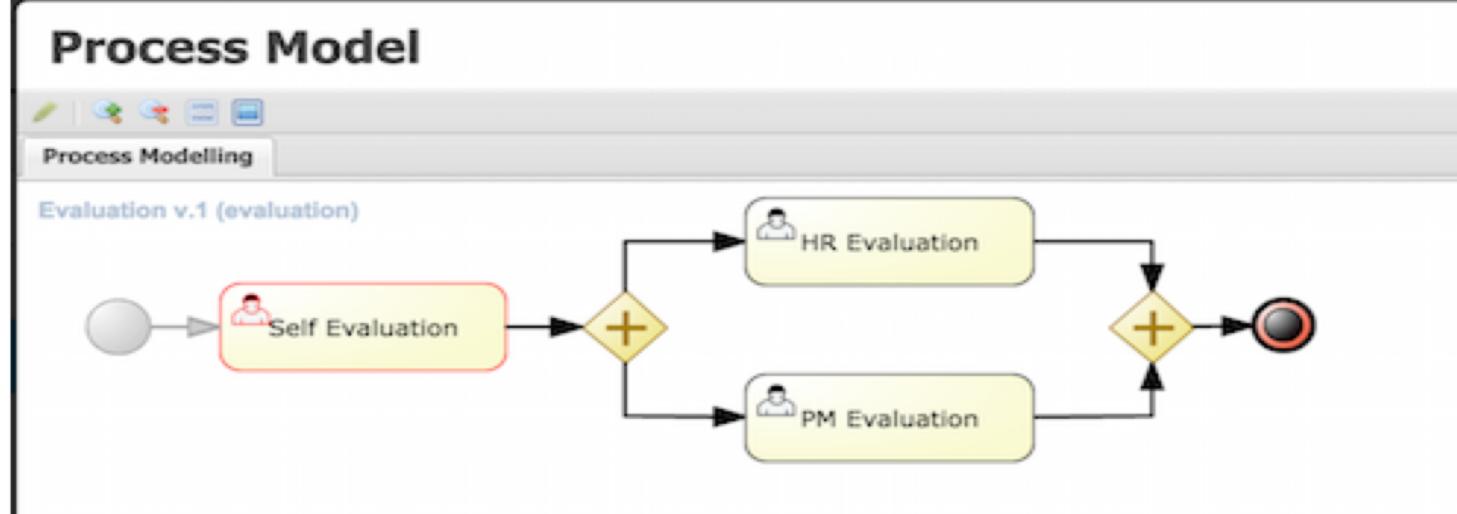
Screenshot of a process monitoring interface showing a list of process instances.

Header navigation: Home, Authoring, Deploy, Process Management, Tasks, Dashboards, Extensions, Find, User: salaboy, Language, Help.

Search bar: Search... with a magnifying glass icon.

Table header: Process Instances, Bulk Actions, Showing: Active, Completed, Aborted, Related To Me, Sort, Refresh.

Select	Id	Name	Description	Version	Actions
<input type="checkbox"/>	1	Customer Relationships	Customer Relationships	1.0	
<input type="checkbox"/>	2	Hiring a Developer	Hiring a Developer	1	
<input type="checkbox"/>	3	Check weather process	Check weather process	1	
<input type="checkbox"/>	4	Evaluation	Evaluation	1	



# Process Monitoring: Process Instance Details

1 - Customer Relationships

Options ▾

Instance Details   Process Variables   Documents   Logs

**Definition Id** CustomersRelationship.customers

**Instance State** Active

**Deployment** org.jbpm:CustomersRelationship:1.0

**Definition Version** 1.0

**Active user tasks** Obtain Customer Info (Ready) owner: ---

**Current Activities** 15/Jan/15 16:06:15: 1 - Obtain Customer Info (HumanTaskNode)

1 - Customer Relationships

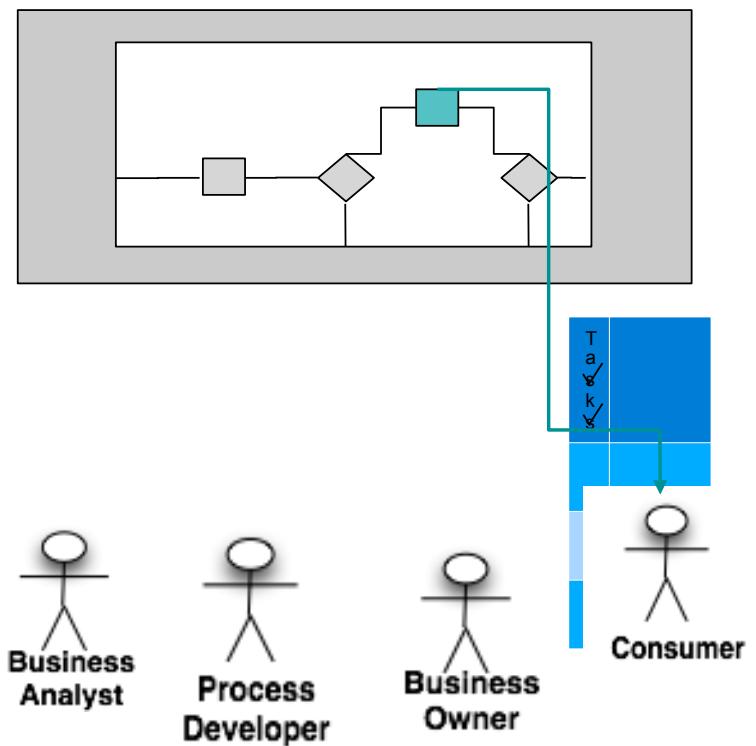
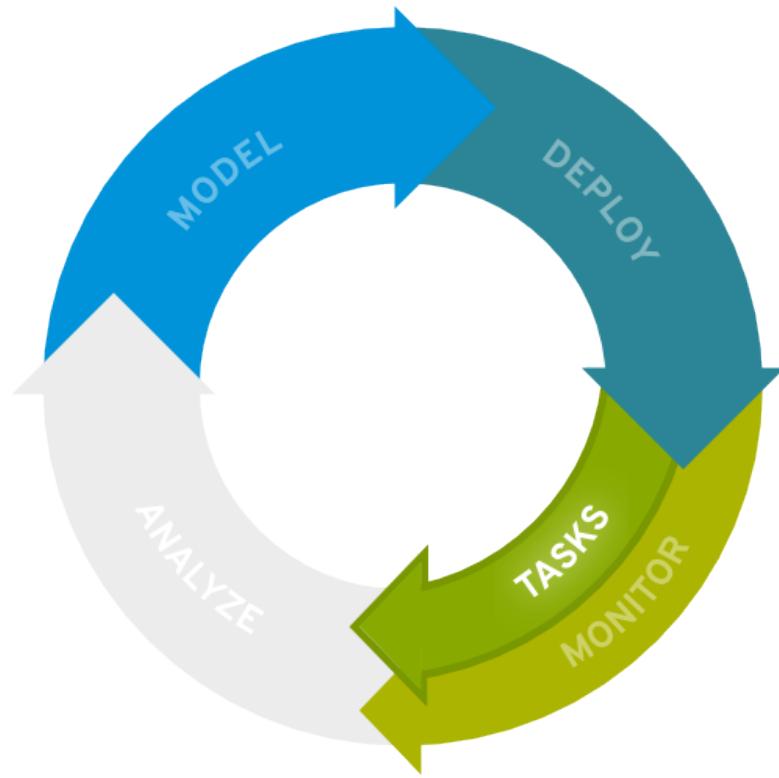
Options ▾

Instance Details   **Process Variables**   Documents   Logs

Name	Value	Actions
customer_phone	55512345	
initiator	salaboy	
customer_comment		
customer_address		
customer_name		
customer_email		
customer_lastname		
customer_age		

1-8 of 8

# BPM Lifecycle - Tasks

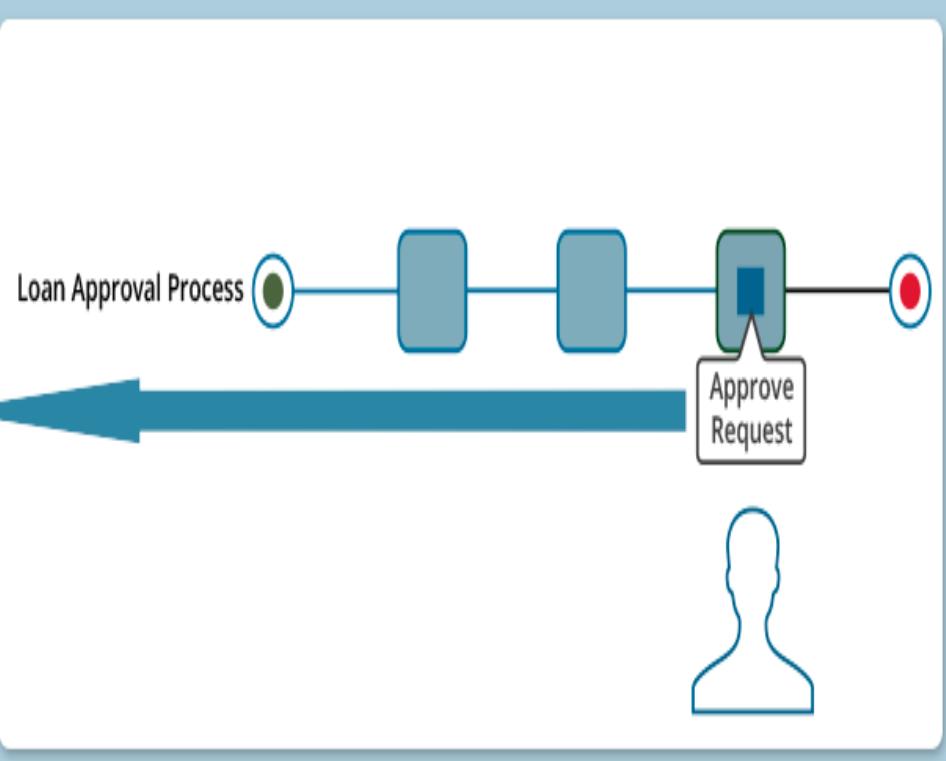


# Tasks: Inbox

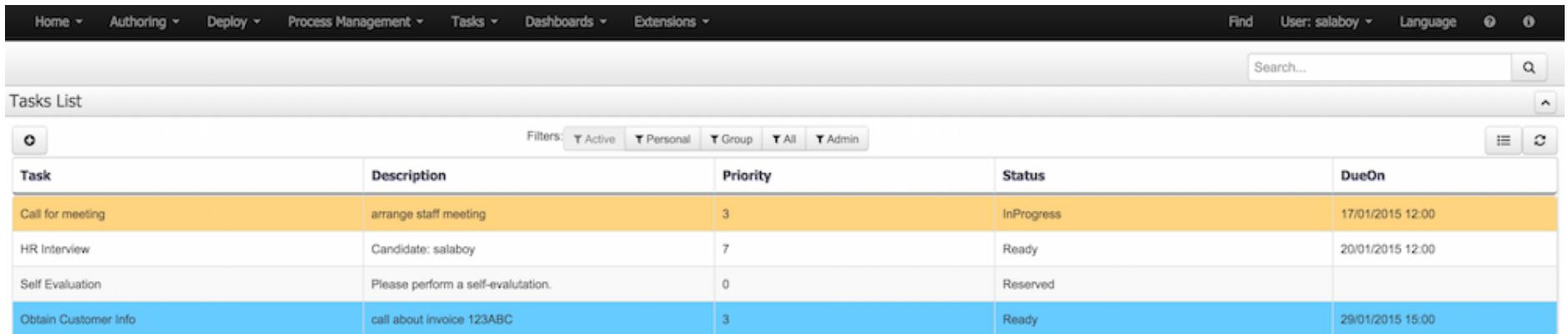
## Manage Tasks:

- View Personal Tasks
- View Group Tasks
- Claim or Release Group Tasks
- Work on Assigned Tasks
- Create New Tasks

My Tasks
<input type="checkbox"/> Disburse loan account
<input type="checkbox"/> Approve request
<input type="checkbox"/> Submit order



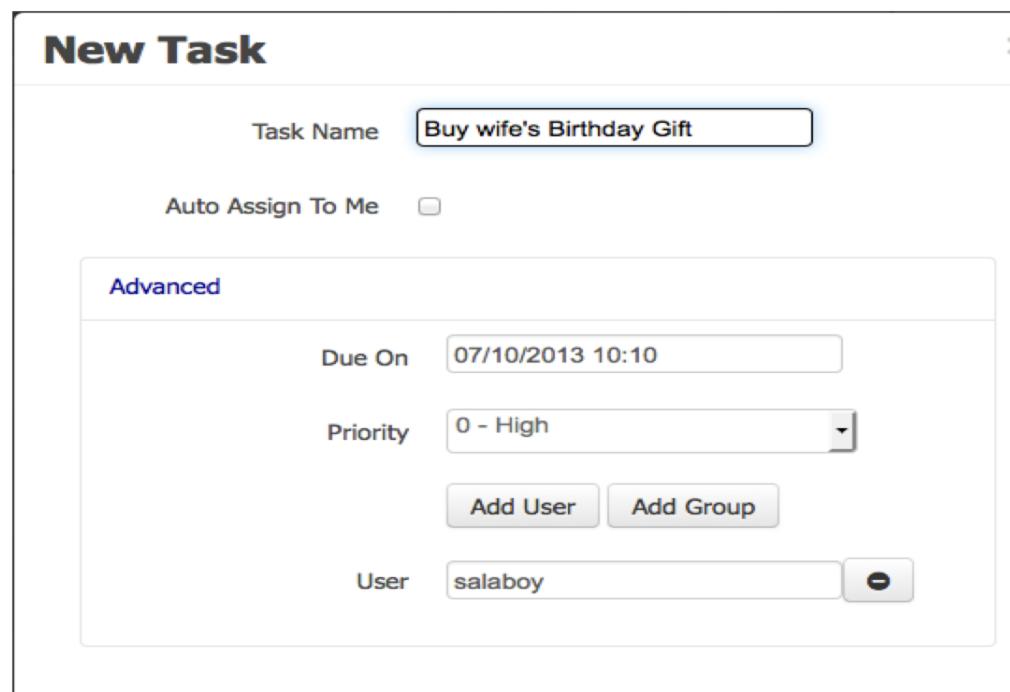
# Tasks: Task List



The screenshot shows a task management application interface. At the top, there is a navigation bar with links: Home, Authoring, Deploy, Process Management, Tasks, Dashboards, and Extensions. On the right side of the top bar, there are buttons for Find, User: salaboy, Language, and help. Below the navigation bar is a search bar with a placeholder "Search..." and a magnifying glass icon.

The main area is titled "Tasks List". It features a table with columns: Task, Description, Priority, Status, and DueOn. There are filters at the top of the table: Active, Personal, Group, All, Admin. The table contains four rows of task data:

Task	Description	Priority	Status	DueOn
Call for meeting	arrange staff meeting	3	InProgress	17/01/2015 12:00
HR Interview	Candidate: salaboy	7	Ready	20/01/2015 12:00
Self Evaluation	Please perform a self-evaluation.	0	Reserved	
Obtain Customer Info	call about invoice 123ABC	3	Ready	29/01/2015 15:00



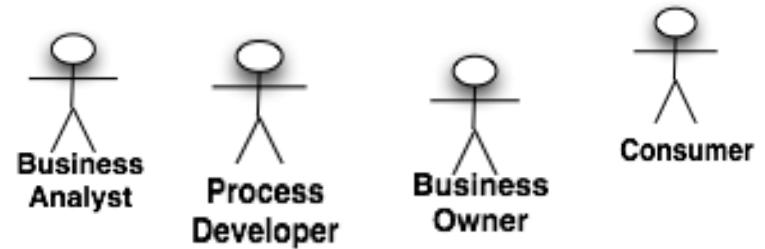
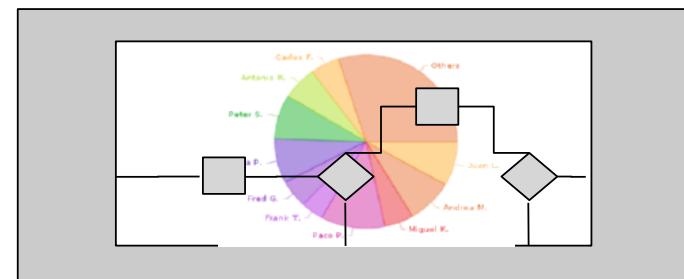
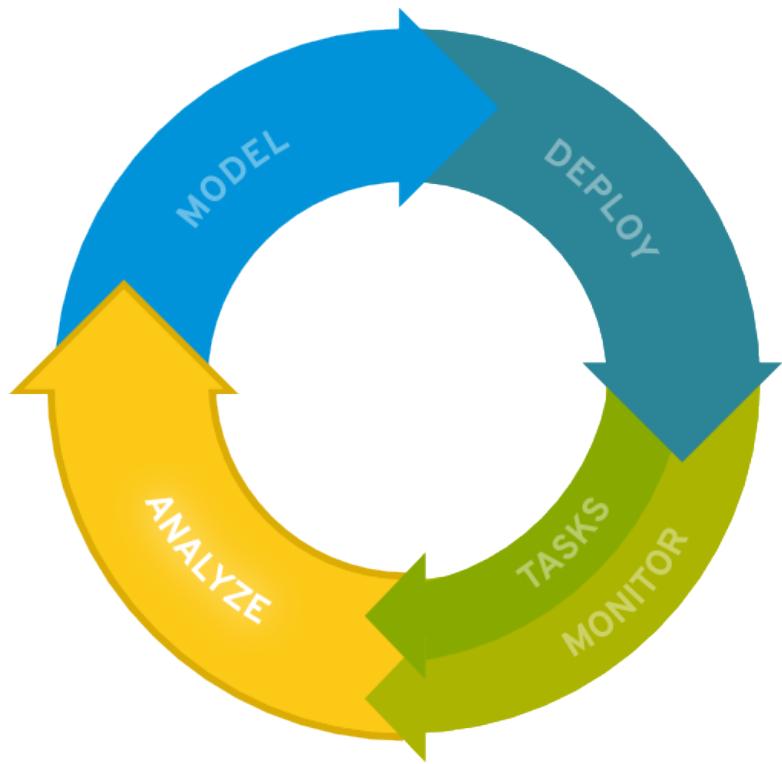
The screenshot shows a "New Task" dialog box. At the top, it says "New Task" and has a close button. Below that, there is a "Task Name" field containing "Buy wife's Birthday Gift". Underneath the task name is a checkbox labeled "Auto Assign To Me" which is unchecked.

A section titled "Advanced" is expanded, showing the following fields:

- "Due On" field with the value "07/10/2013 10:10".
- "Priority" dropdown menu set to "0 - High".
- "Add User" and "Add Group" buttons.
- "User" field containing "salaboy" with a minus sign icon to its right.



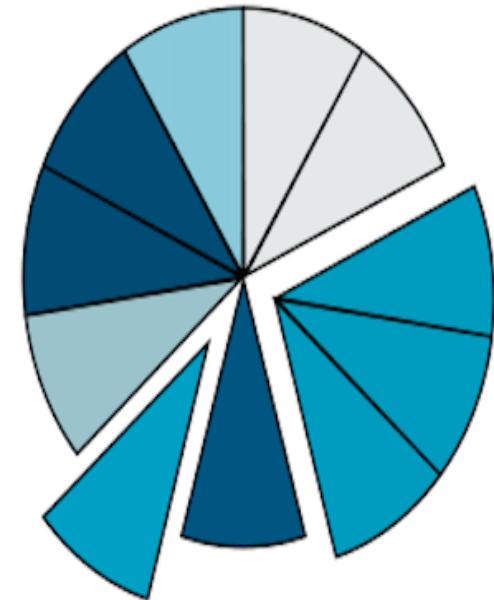
# BPM Lifecycle: Analyze



# BAM – Business Activity Monitoring

## Monitor:

- Visualize Process States
- Visualize KPIs
- Create Custom Dashboards
- Modify Existing Dashboards
- Define New Data Sources



# BAM: Overview

Dashboards Showcase - By country - Google Chrome

localhost:8080/dashbuilder/

Workspace : Showcase Page: By country

JBoss by Red Hat English Español Logged as admin Logout

Home Sample dashboards Sales opportunities Expense reports Administration Current filter Country: Saudi Arabia Amount: to Closing date: - Select Closing date - Pipeline: - Select Pipeline - Status: - Select Status - Customer: - Select Customer - Product: - Select Product - Sales person: - Select Sales person - Probability: to Source: - Select Source -

**By Country: Saudi Arabia**  
Sample dashboards > Sales opportunities > By country

**By customer**

Company 8 Company 5  
Company 2 Company 9  
Company 4 Company 1 Company 3  
Company 6 Company

**By sales person**

Nita Marling Jerri Preble  
Darryl Innes Kathrine Janas  
Julio Burdge Neva Hunger  
Jamie Gilbeau Roxie Foraker

**By product**  
PRODUCT 8 : 224,815.4

Amount: 224,815.4  
PRODUCT 8 PRODUCT 10 PRODUCT 6 PRODUCT 4 PRODUCT 1 PRODUCT 5 PRODUCT 11 PRODUCT 2 PRODUCT 3 PRODUCT 7

**Sales evolution**

April 2010 : 14439.387

Amount: 47365.829  
Sales evolution  
April 2010 February 2011 December 2011 October 2012 August 2013 June 2014 April 2015

# BAM: Define KPIs

Dashboards Showcase – Pipeline analysis – Google Chrome

localhost:8080/dashbuilder/workspace/en/showcase/sales-pipeline

Workspace : Showcase Page: Pipeline analysis

English Español Logged as admin Logout

**JBoss® by Red Hat**

**Pipeline Analysis**

Sample dashboards > Sales opportunities > Pipeline analysis

**Panel Edition**

Data provider: Sales dashboard demo ▾

KPI's name: Expected pipeline English ▾

Domain (X Axis): Closing date ▾

Range (Y Axis): Expected amount ▾

Renderer: JVD3 ▾

Show title:

Width: 600

Height: 300

External color: #FF0000

Align graphic to: Center ▾

Left margin: 100

Right margin: 30

Top margin: 30

Bottom margin: 80

Sort intervals by: Name ▾

Sort order: None ▾

Show labels (X Axis):

Label angle (X Axis): -45

Paint area:

**Expected pipeline**

Expected amount

59985255.528

12525643.728

Apr 2010 Jul 2011 Oct 2012 Jan 2014 Apr 2015

Closing date

EARLY STANDBY

**DEMO** **VERBAL COMMITMENT**

**LOST** **STANDBY**

**QUALIFIED** **SHORT LISTED**

45

# BAM: Process Dashboard

Default Workspace :: Process dashboard – Chromium  
localhost:8080/workspace/en/workspace/process-dashboard?idPanel=3052&pAction=\_select  
Workspace : Default Workspace Page: Process dashboard English English Espanol  
Logged as: Root Change user: Log in

**JBoss® by Red Hat**

**Process Dashboard**  
Process dashboard

**Instances by process**

Purchase 27 / 181 15%

**Instances started by user**

Marc V., Paco P., Angel C., Carlos F., Irina P., Peter S., Juan L., Fred G., Laia P., Gemma S., Others

**Process instances by status**

Process	Total	Active	Completed	Pending	Suspended	Aborted
Expenses	13	2	2	3	3	3
IT support issue	15	2	5	3	1	4
Lead Management	18	4	4	5	2	3
Leave Management	30	5	7	10	4	4
New Hire	22	3	9	4	3	3
Purchase	27	6	8	8	4	1
Sales	45	8	5	8	10	14
Travel Management	11	4	2	2	3	0
<b>TOTAL</b>	<b>181</b>	<b>34</b>	<b>42</b>	<b>43</b>	<b>30</b>	<b>32</b>

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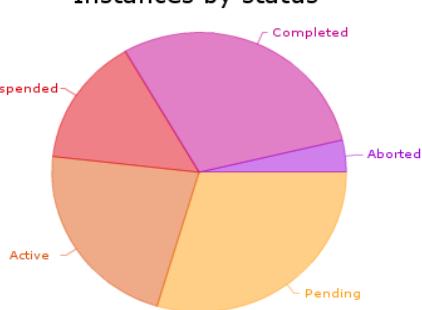
# BAM: Process Dashboard – Instance Details

Default Workspace :: Selected process – Chromium  
localhost:8080/workspace/en/workspace/process-selected?idPanel=2966&pAction=\_select  
Workspace : Default Workspace Page: Selected process Logged as: Root Change user: English Log in

by Red Hat

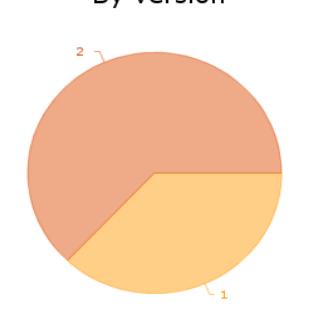
**Selected Process: Purchase**  
Process dashboard > Selected process

**Instances by status**



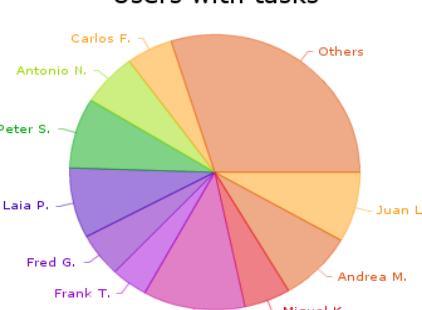
Completed, Suspended, Aborted, Active, Pending

**By version**



2, 1

**Users with tasks**



Carlos F., Antonio N., Peter S., Laia P., Juan L., Andrea M., Miguel K., Fred G., Frank T., Paco P., Others

**Tasks started by date**



Number of task instances, Tasks duration, Tasks started by date, Tasks completed by date

Date	Count
11/29/12	11
12/6/12	12
12/13/12	17
12/20/12	11
12/27/12	19
1/3/13	4
1/10/13	6
1/17/13	5
1/24/13	4
2/7/13	2
2/14/13	2
2/21/13	1
2/28/13	1

Process initiated by date, Process completed by date, Process duration

Process	Instances	MIN	Average	MAX
Purchase	27	583.77	1,308.614	1,907.95
TOTAL	27	583.77	1,308.614	1,907.95

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# INTEGRATION WITH OTHER JBoss PRODUCTS

# BPMS Integration (multiple options)

The purpose of the integration package is to provide the glue between Fuse and BRMS components/libraries. The Fuse Integration Package gives the ability to install the components/libraries that have not been included in Fuse (Drools, BPM, etc).

JBoss BRMS introduces two elements to make easy integration.

## **Drools Policy**

Augments any JAXB or XStream data loaders. For JAXB it adds drools related paths of the contextpath, for XStream it adds custom converters and aliases for Drools classes. It also handles setting the ClassLoader to the targeted ksession.

## **Drools Endpoint**

Executes the payload against the specified drools session

## For BPM Suite

A new out-of-the-box service task has been implemented for using Apache Camel to connect a process to the outside world using some of the numerous Camel endpoint URIs

# DEMO SLIDES

# Project Creation

## Create new Project

\* Project IRS\_Demo

+ Ok

Cancel

### New Project

✓ New Project Wizard

#### Project General Settings

Project Name IRS\_Demo

Project Description Insert a project description for documentation purposes ...

#### Group artifact version

Group ID IRS\_tax\_2015 Example: com.myorganization.myprojects ⓘ

Artifact ID IRS\_Demo Example: MyProject ⓘ

Version 1.0.0 ⓘ

< Previous Next > Cancel Finish



# Model Business Process (BPMN2.0)

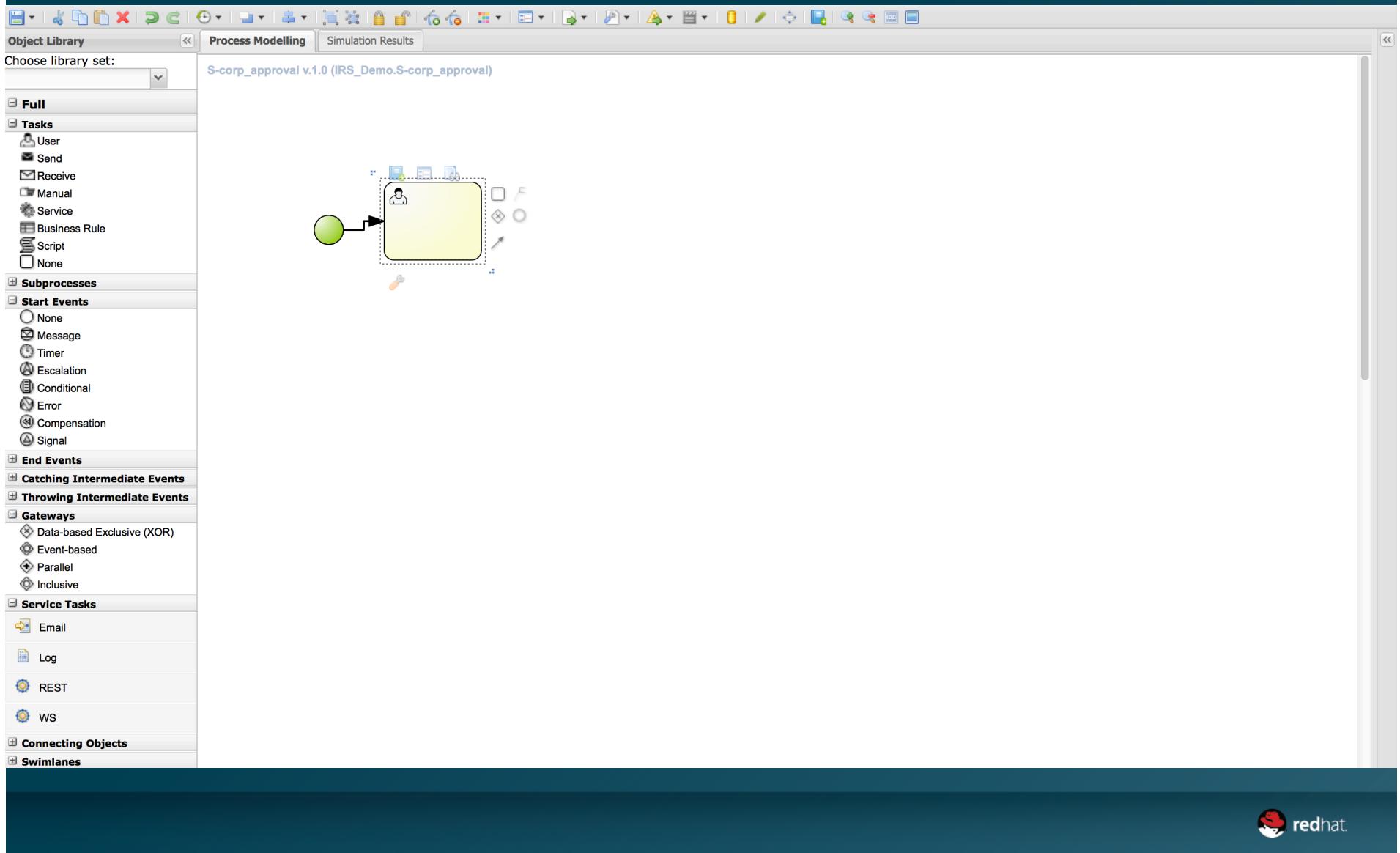
**Create new Business Process** ×

\* Business Process

Package  ▼

+ Ok Cancel

# Model Business Process (BPMN2.0)



# Generate Forms

Object Library      Process Modelling      Simulation Results

Choose library set: **for\_lrs v.1.0 (irs.for\_lrs)**

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

Edit Process Form Edit Task Form Generate Task Form Generate all Forms

Properties (User)

Name	Value
Core Properties	
Actors	
Assignments	
DataInputSet	
DataOutputSet	
Groups	
Name	
Task Name	
Task Type	User
Extra Properties	
Comment	
Content	
Created by	
Documentation	
Locale	
Multiple Instances	false
Notifications	
On Entry Action	
On Exit Action	
Priority	
Reassignment	
Script Language	java
Skippable	true
Graphical Settings	
Background Color	Light Blue
Border Color	Black
Font Size	14
Font color	Black
Simulation Properties	
Cost per time unit	0
Distribution	uniform
Processing time	10
Processing time	5
Staff availability	1
Working Hours	8

# Build Process Flow

Home ▾ Authoring ▾ Deploy ▾ Process Management ▾ Tasks ▾ Dashboards ▾ Extensions ▾ Find User: bpmsAdmin ▾ ? i 🌐

Explore ▾ New Item ▾ Repository ▾ Search... Q

Project Explorer CDC\_lv / cdclvrepo / IRS\_Demo Open Project Editor --- No items found ---

Project: [IRS\_Demo:IRS\_tax\_2015:1.0]

Project Name IRS\_Demo Save Delete Rename Copy Build & Deploy

Project Description Insert a project description for documentation purposes ...

Group artifact version

Group ID IRS\_tax\_2015 Example: com.myorganization.myprojects ⓘ

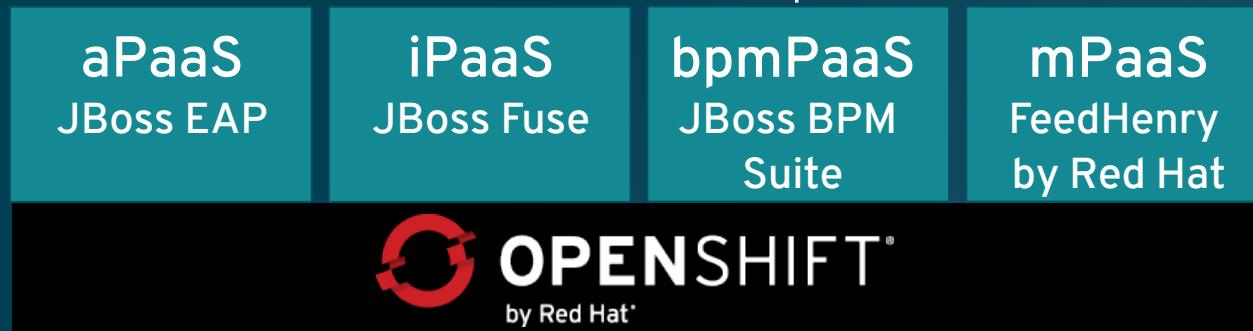
Artifact ID IRS\_Demo Example: MyProject ⓘ

Version 1.0.0 ⓘ

 redhat.

# BPM PaaS

- 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



ON-PREMISE



PRIVATE



PUBLIC