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Human-centric BPM in WebSphere – Introduction, Capabilities and Usage Patterns



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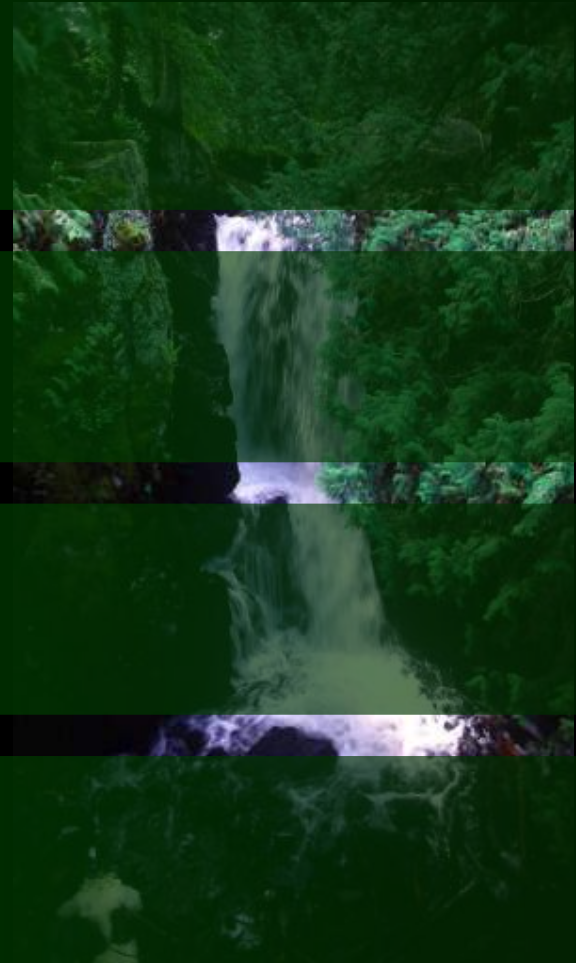
General Flow

Introduction: SOA and BPM

**Human-centric BPM with
WebSphere**

**Advanced Human-centric BPM
Scenarios**

Summary and Outlook



General Flow

Introduction: SOA and BPM

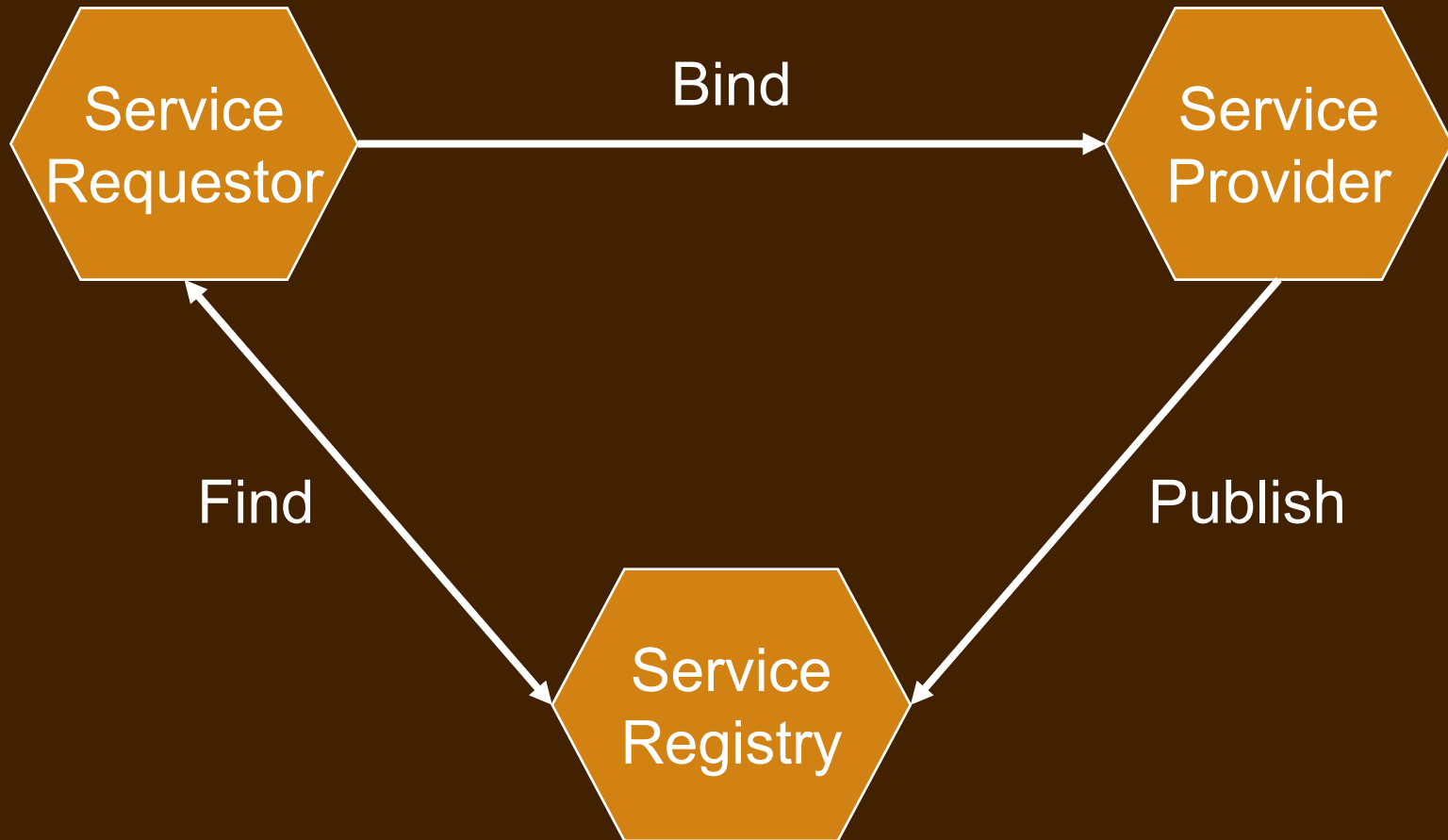
Human-centric BPM with
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Summary and Outlook



The Basics: What is SOA?



The Convergence of SOA and BPM

Forcing SOA to Respond and Mature

2003: IT driven SOA Perception

SOA Definition

SOA as an Architectural Framework

A **service-oriented architecture (SOA)** is an architectural framework that takes everyday business applications and breaks them down into **individual business functions called services**.

An SOA lets you build, deploy and integrate these services **independent of applications** and the computing platforms on which they run.



2008: Service Oriented Enterprise

Business strategy analysis

Component Business Modeling Provides a way to link strategy to Operational model

Business Strategy	Operational Model	Business Strategy	Operational Model	Business Strategy	Operational Model
Business Strategy	Operational Model	Business Strategy	Operational Model	Business Strategy	Operational Model
Business Strategy	Operational Model	Business Strategy	Operational Model	Business Strategy	Operational Model
Business Strategy	Operational Model	Business Strategy	Operational Model	Business Strategy	Operational Model
Business Strategy	Operational Model	Business Strategy	Operational Model	Business Strategy	Operational Model

Business Innovation



Focus on "What makes you special"

Business process optimization

Business Process Management models, simulates, analyzes and continuously redesigns business processes



Implement designed processes with SOA



Monitor performance for further improvement

SOA architectural framework

SOA infrastructure orchestrates business processes and mediates service providers



Open Standards are Fundamental for SOA & BPM

IBM Continues to Lead Advancements in SOA-Based Open Standards

Web Services & Web Service Interoperability

Interface, Policy

Reliable Messaging

Security (Trust, Secure Conversation)

Transactions (Atomic, Business Activity)

Web Services Profiles

Service Management

Notification

Distributed Management



Composition

Service Data Objects (SDO)

Service Component Architecture (SCA)

Web 2.0 Innovations

Open Document & XForms

Authoring

Java, C++, BPEL, PHP, ...

Standards



Business Process Management

BPEL, BPEL4People, BPEL-SPE, BPELJ, BPMN

Industry Standards

ACORD, SWIFT, FIX, EDI, XBRL, SIP, ...

WS-Coordination WS-Secure Conversation WS-Security WSDL WS-Security Policy WS-BPELJ WS-Notification Base Notification
SCA WS-Metadata Exchange SOAP WS-Reliable Messaging WS-RF Resource Properties XML Encryption Syntax WS-BPEL
WS-Business Activity WS-RF Service Groups WS-Notification Topics WS-DM MOWS WS-Agreements WS-Federation WS-Policy Attachments
WS-BPEL SPE WS-Addressing WS-BPEL4People WS-RF Resource Metadata Descriptor WS-DM MUWS SDO WS Trust
WS-Atomic Transactions

Open Standards for Business Process Management



Business Modeling

- ❑ **BPMN 1.1**
Business Process Modeling Notation
- ❑ **BPMN 2.0**
Business Process Model and Notation



BPMN 1.1 final January 2008
BPMN 2.0 submitted May 2009,
finalization task force in progress

IT Specification

- ❑ **WS-BPEL 2.0**
Automatic workflows
- ❑ **BPEL4People, WS-HumanTask**
Human workflows and tasks
- ❑ **BPEL-SPE**
Subprocesses



WS-BPEL 2.0 adopted April 2007
BPEL4People, WS-HT in progress
BPEL-SPE whitepaper published

Infrastructure

- ❑ **SCA**
Service Components
- ❑ **SCA-BPEL**
BPEL integration into SCA



OSOA SCA and bindings final March 2007
OASIS SCA V1.1 in Public Review
Compliance Tests under construction

WebSphere Human-centric BPM Evolution

1Q/2002:
WAS Enterprise Edition 4.1

On workstation platforms

- Process engine based on FDML
- Microflows only

1Q/2004:
WBI Server Foundation 5.1

On workstation platforms

- BPEL enabled process engine

2Q/2004 on z/OS

1Q/2003:
WAS Enterprise Edition 5.0

On workstation platforms

- Process engine based on FDML
- Microflows
- Long-running processes
- **Human workflows!**

4Q/2006:
WPS 6.0.2

- The biggest “service pack” ever ☺

2Q/2008:
WPS 6.1.2

4Q/2007:
WPS 6.1

3Q/2005:
WebSphere Process Server 6.0

Consolidated BPM Runtime

- Based on SCA
- **Human Tasks as reusable components**

2Q/2009:
WPS 6.2 FeP

4Q/2008:
WPS 6.2

4Q/2009:
WPS 7.0

2010:
more to come...

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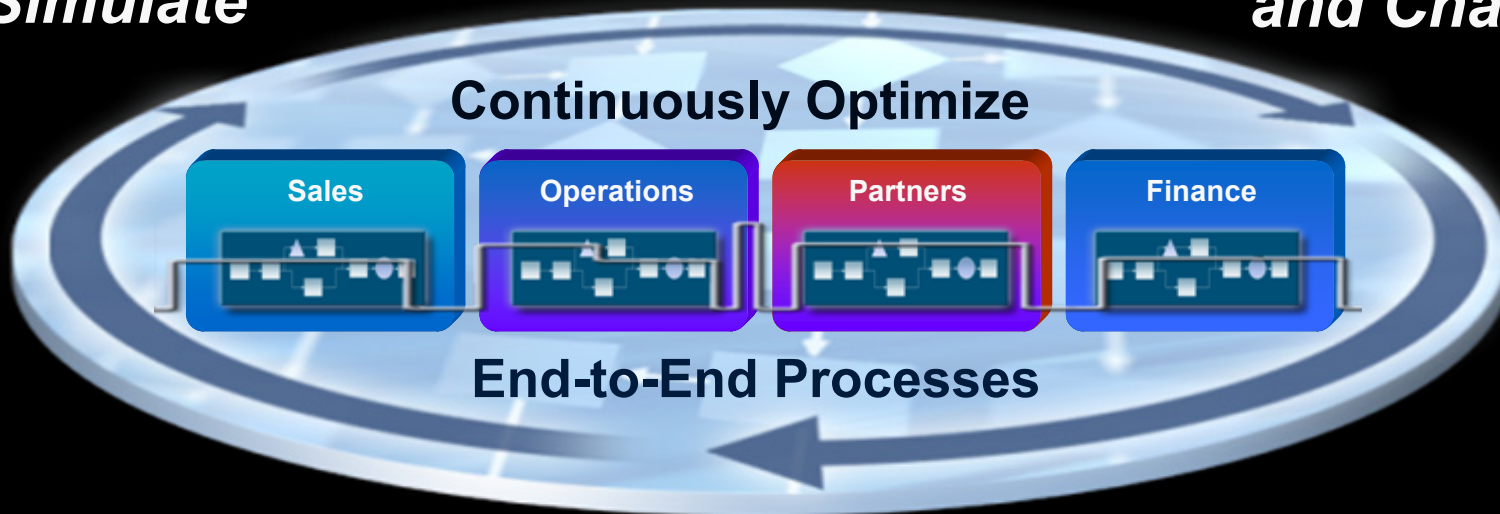
Advanced Human-centric BPM
Scenarios

Summary and Outlook

BPM from IBM Empowers You To Embrace Change and Continuously Optimize Your Business

Model and Simulate

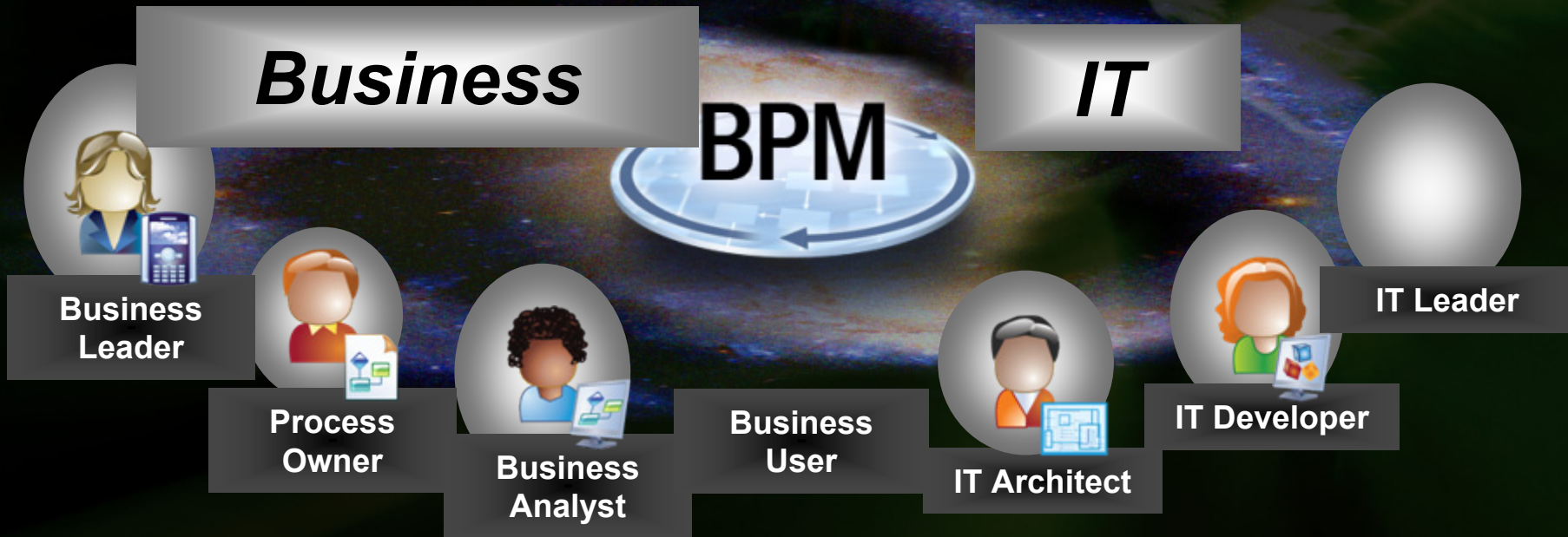
Rapidly Deploy and Change



Monitor, Predict and Act

BPM from IBM provides comprehensive, role-based capabilities to deliver value across enterprise

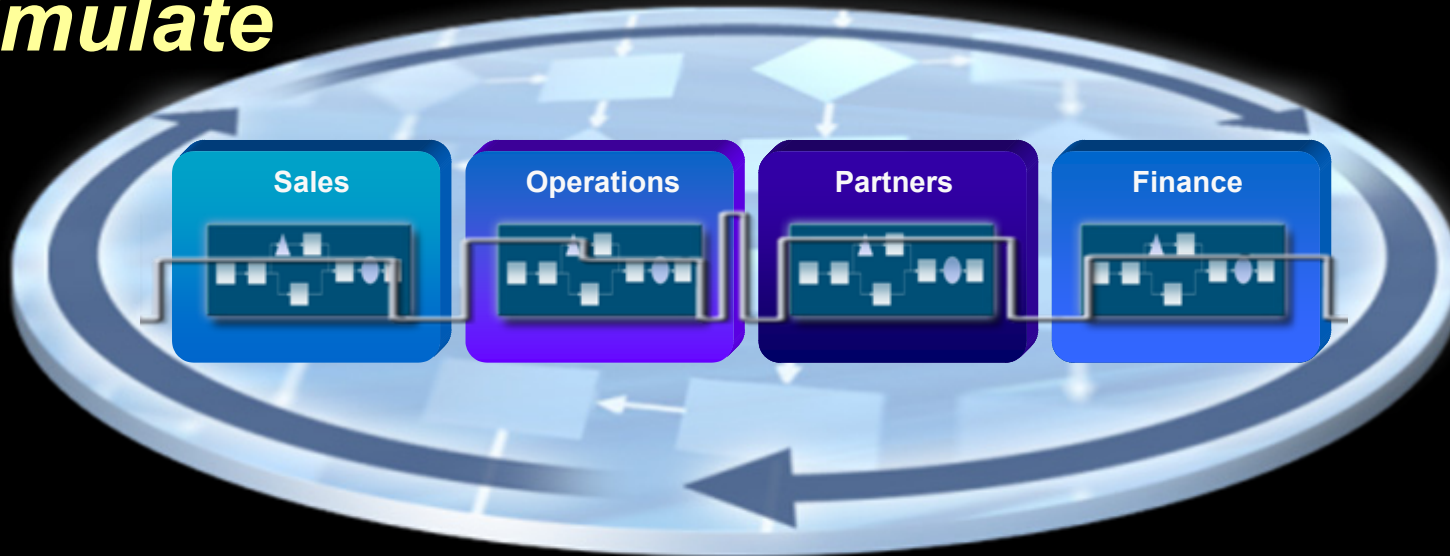
BPM Drives Alignment of Business and IT for *Continuous Process Optimization*



BPM from IBM Empowers You To Embrace Change and Continuously Optimize Your Business

Model and Simulate

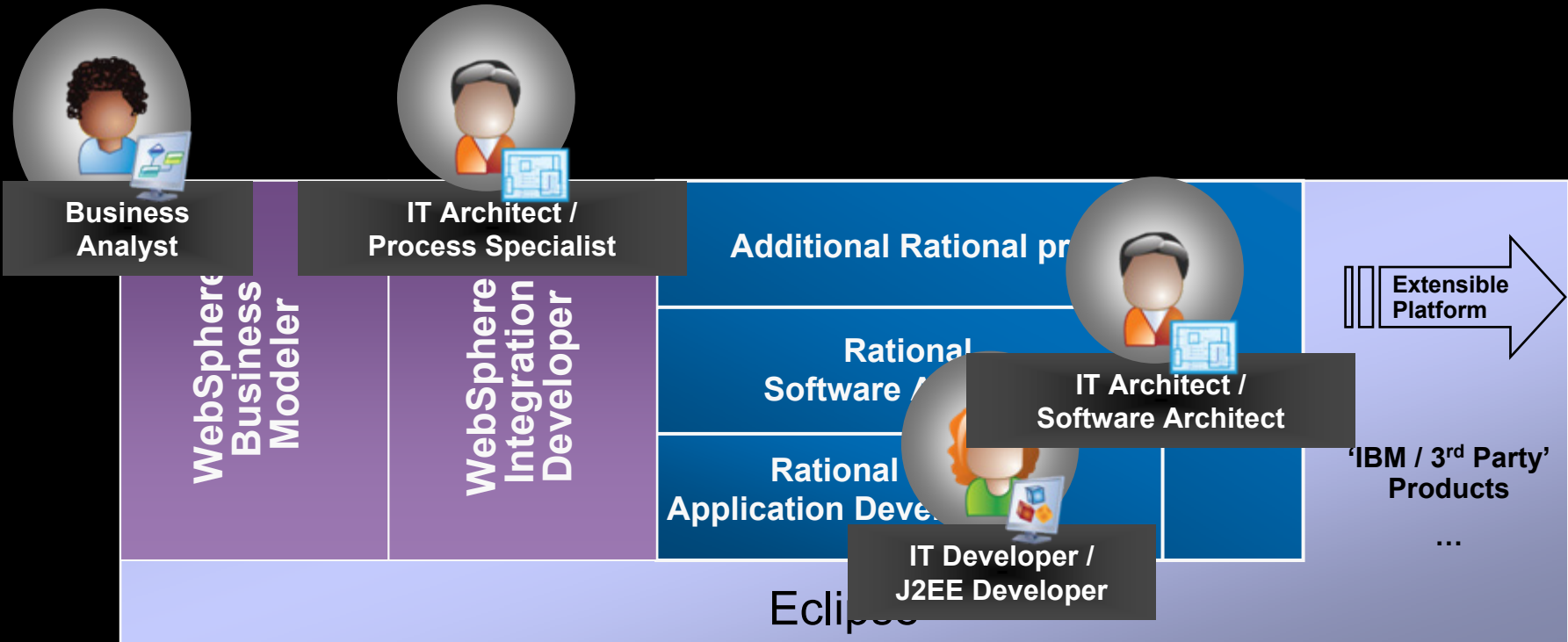
Rapidly Deploy and Change



Monitor, Predict and Act

IBM BPM Suite products and services bring additional BPM value

WebSphere BPM Modeling Tools Portfolio

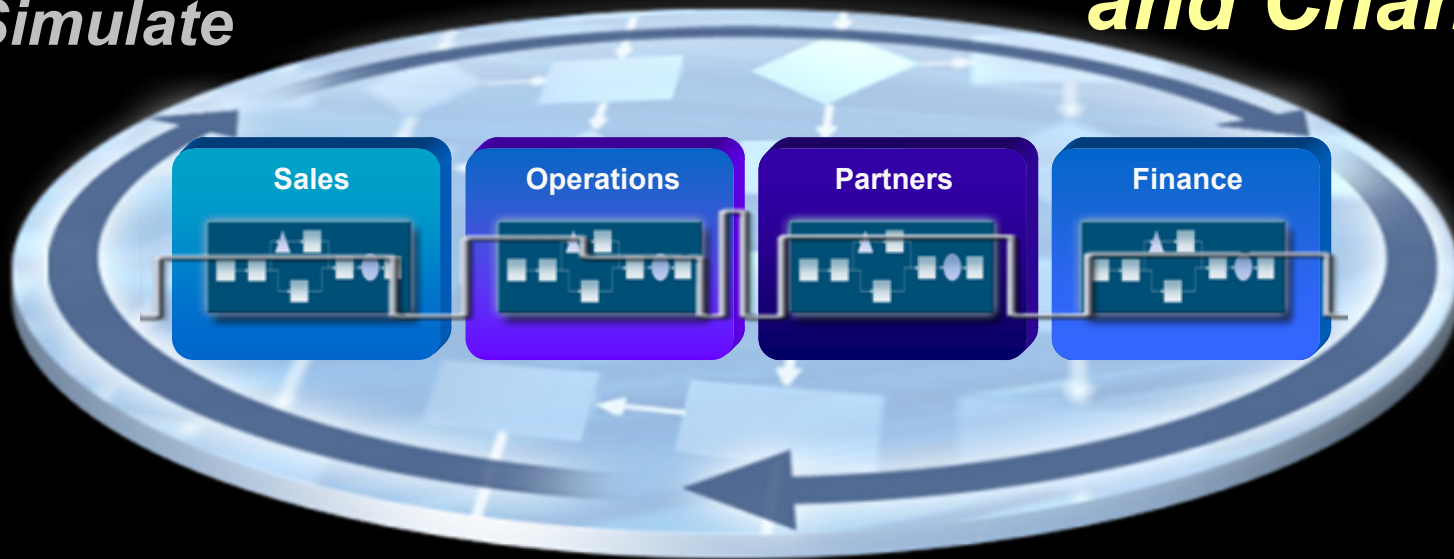


- All IBM Software Development platform products install in a consistent and extendable way within the 'platform'
 - First Product installs the 'platform' as well as its own product-specific 'installable units'
- Role-based tool approach, experienced as single integrated "desktop" IDE
- Reuse of RAD and Eclipse components ('installable units') is baked into the design

BPM from IBM Empowers You To Embrace Change and Continuously Optimize Your Business

Model and Simulate

Rapidly Deploy and Change



Monitor, Predict and Act

IBM BPM Suite products and services bring additional BPM value

Elements of WebSphere Process Server

Supports all aspects of process integration

Also available for



z/OS

Service Components

Business Processes + Human Tasks
= **Human Workflow**

Business State Machines

Business Rules

Supporting Services

Mediation Flows (ESB)

Data Maps

Relationships

Dynamic Service Selection

Business Calendars

SOA Core

Service Component Architecture

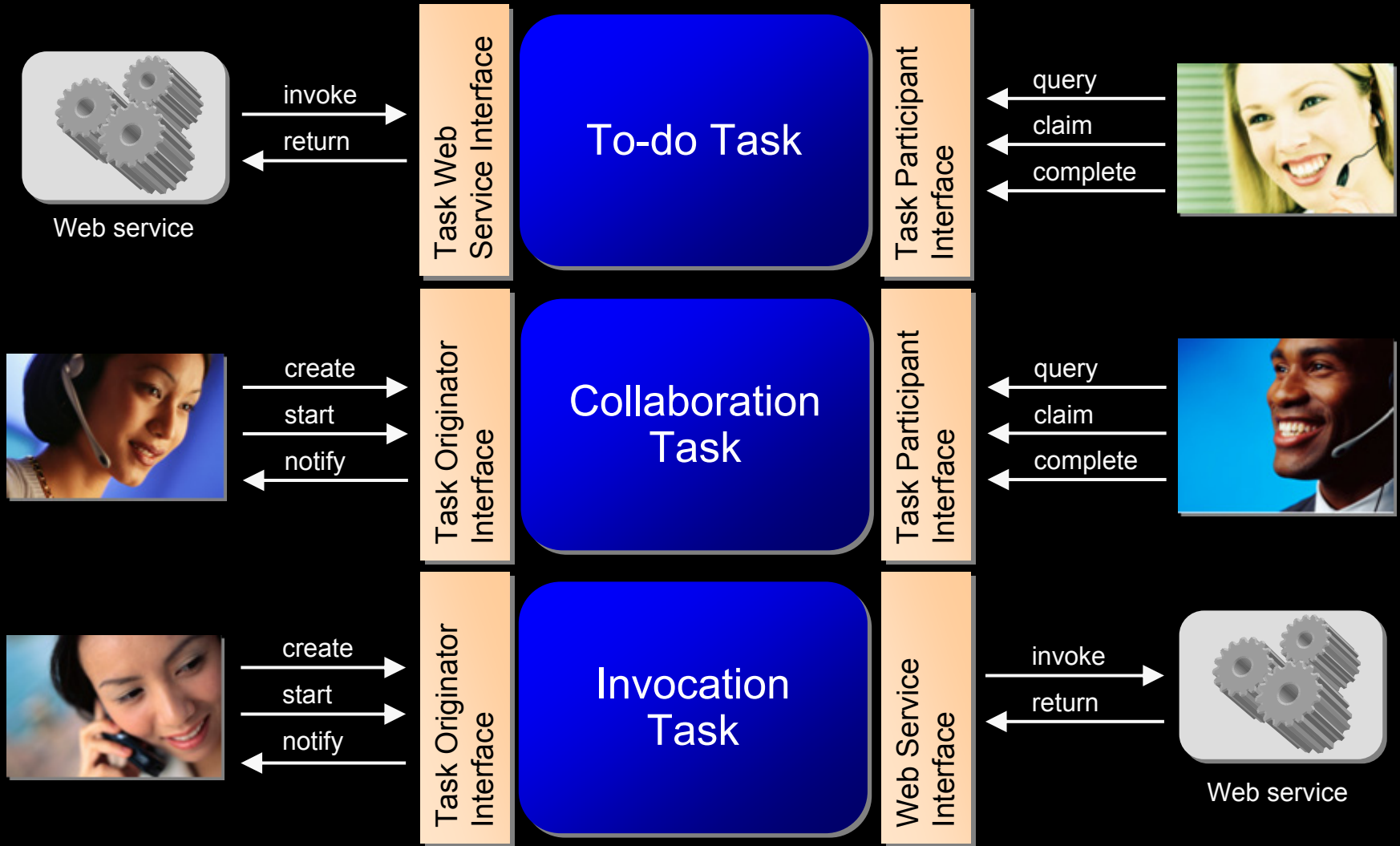
Business Objects

Common Event Infrastructure

WebSphere Application Server ND* (J2EE Runtime)

*WPS for z/OS includes WAS for z/OS

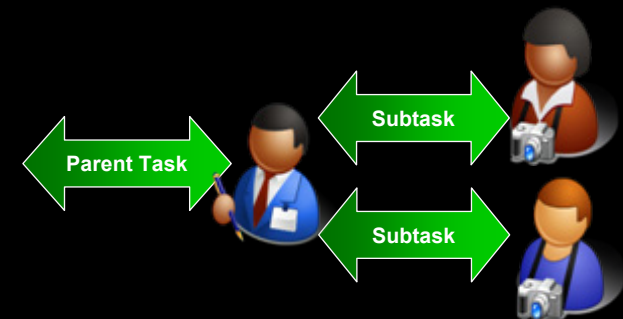
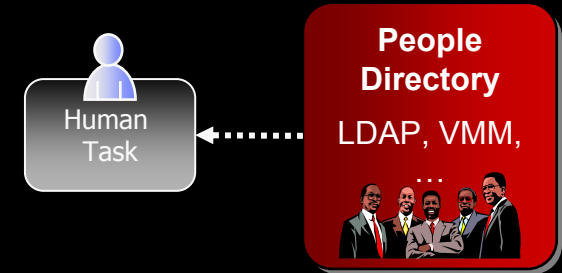
Interaction Patterns with Human Tasks



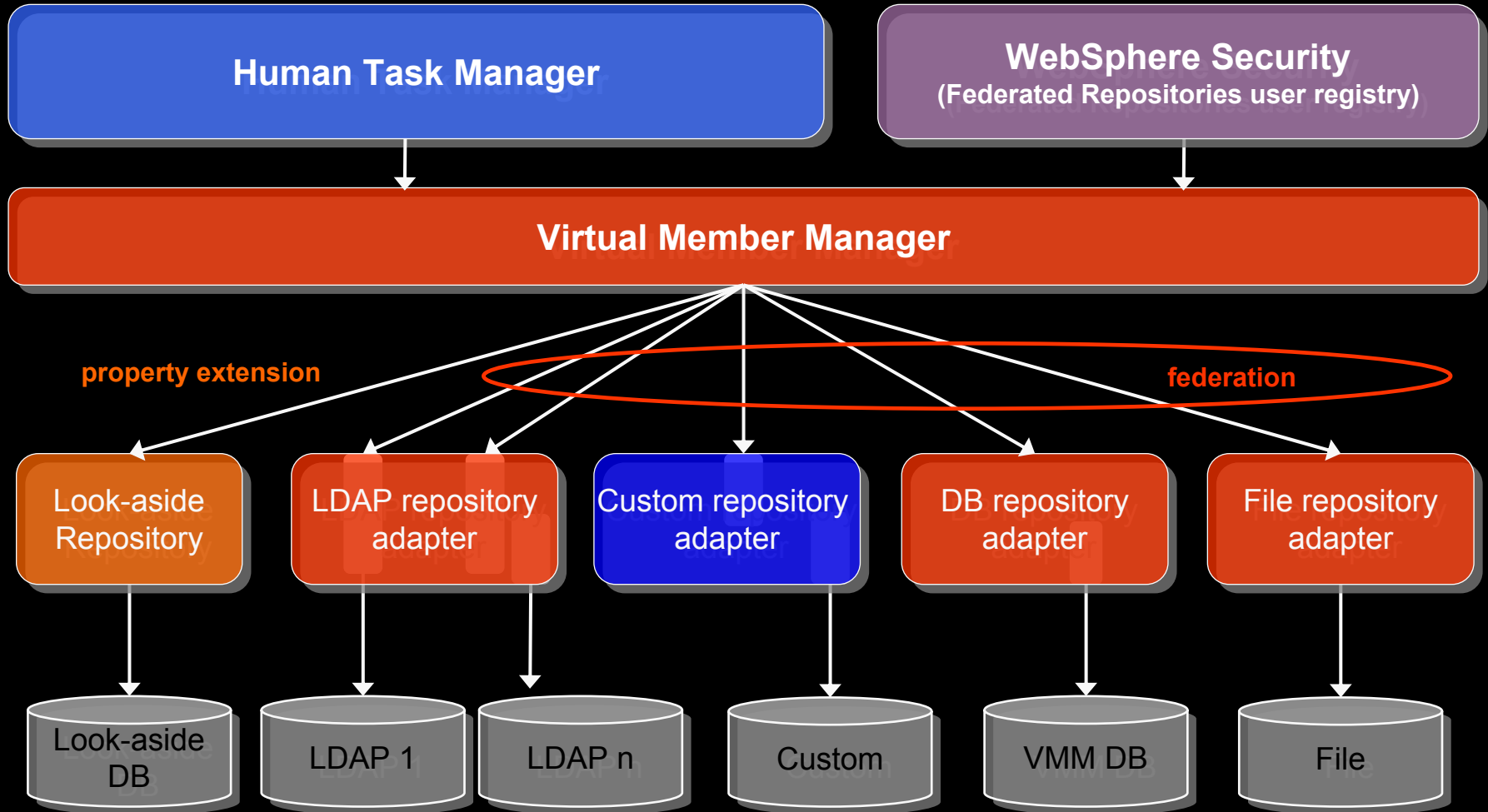
Human Task Manager

Supporting all aspects of human interaction

- Full integration of human workflow into SOA
- Rich task assignment capabilities
 - Assign work using flexible people queries
 - Federate multiple organization directories
 - Ability for dynamic task assignment
 - Re-direct work to substitutes in case of absence
- Support for managing time constraints
 - Multi-level escalation with e-mail based notification to involve additional people or services when the progress of a human task falls behind the modeled expectations
 - Task may become overdue or obsolete after a certain amount of time, handled by Human Task Manager – marks task as overdue or activates expiration processing
- Support for ad-hoc human collaboration
 - Create human tasks on-the-fly, extend pre-defined process models dynamically
 - Follow-up of manual Tasks



Assigning People to Human Tasks based on Virtual Member Manager (VMM)

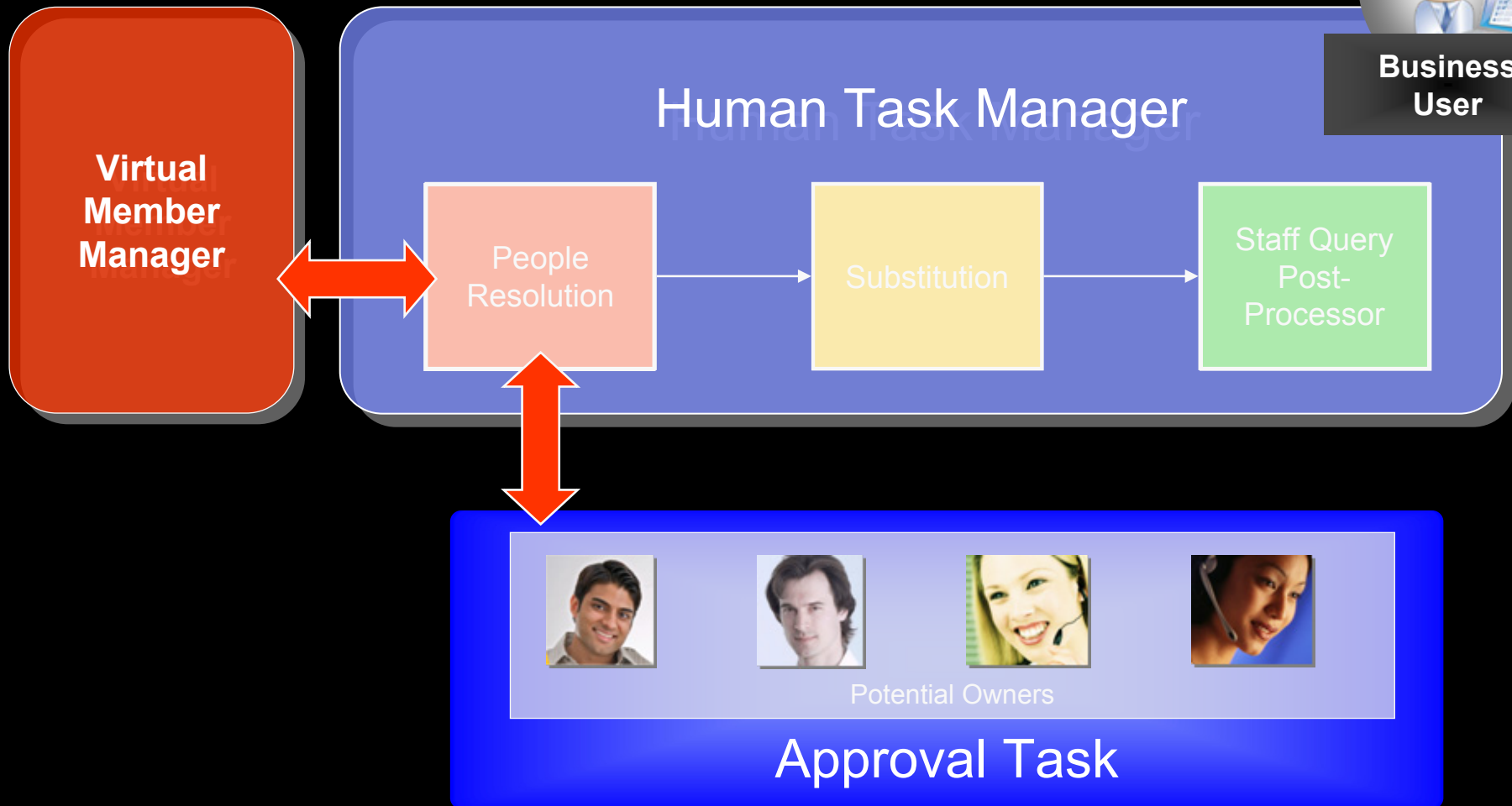


Assigning People to Human Tasks

People resolution, substitution, post-processing



Business User

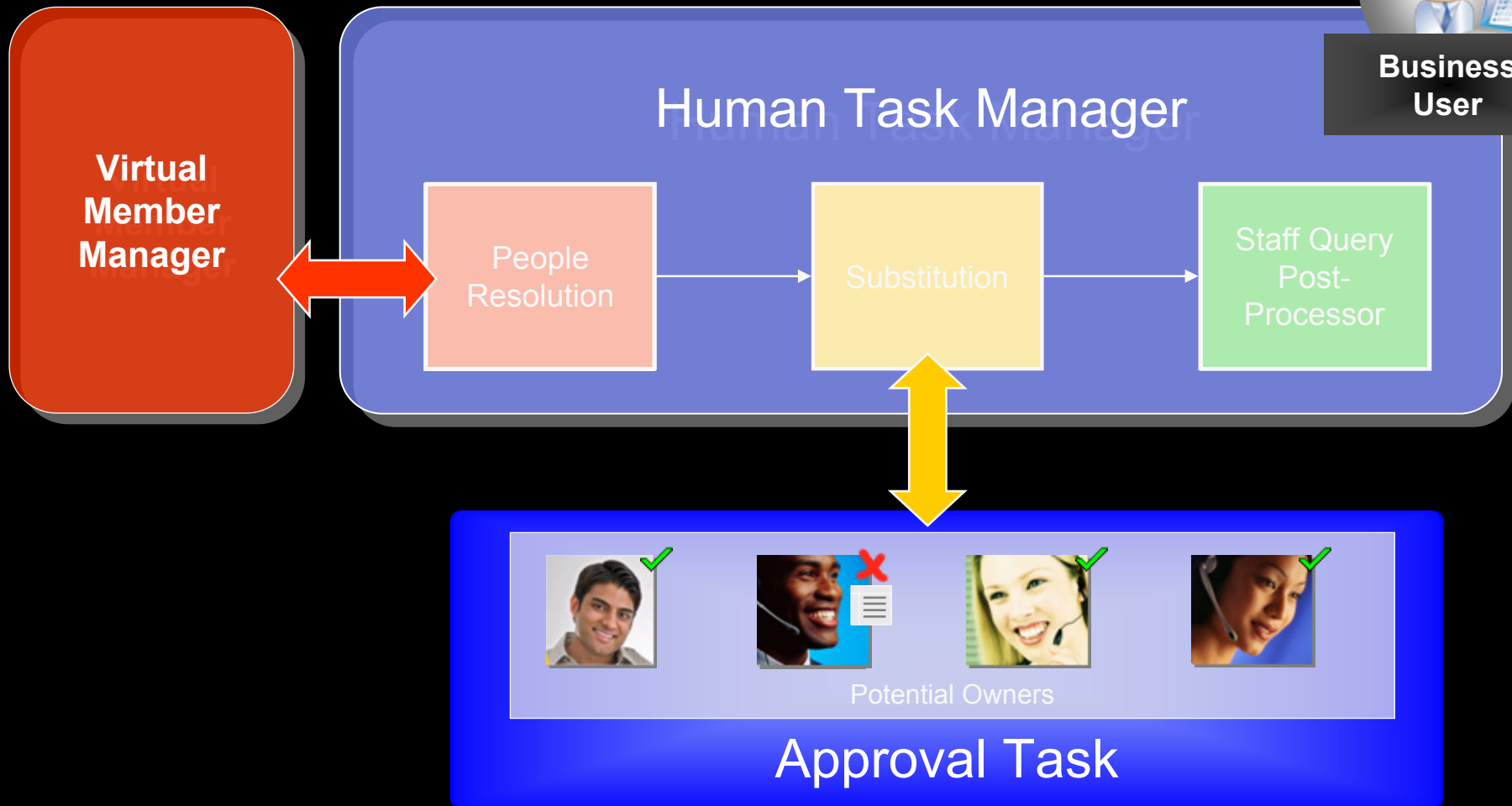


Assigning People to Human Tasks

People resolution, substitution, post-processing

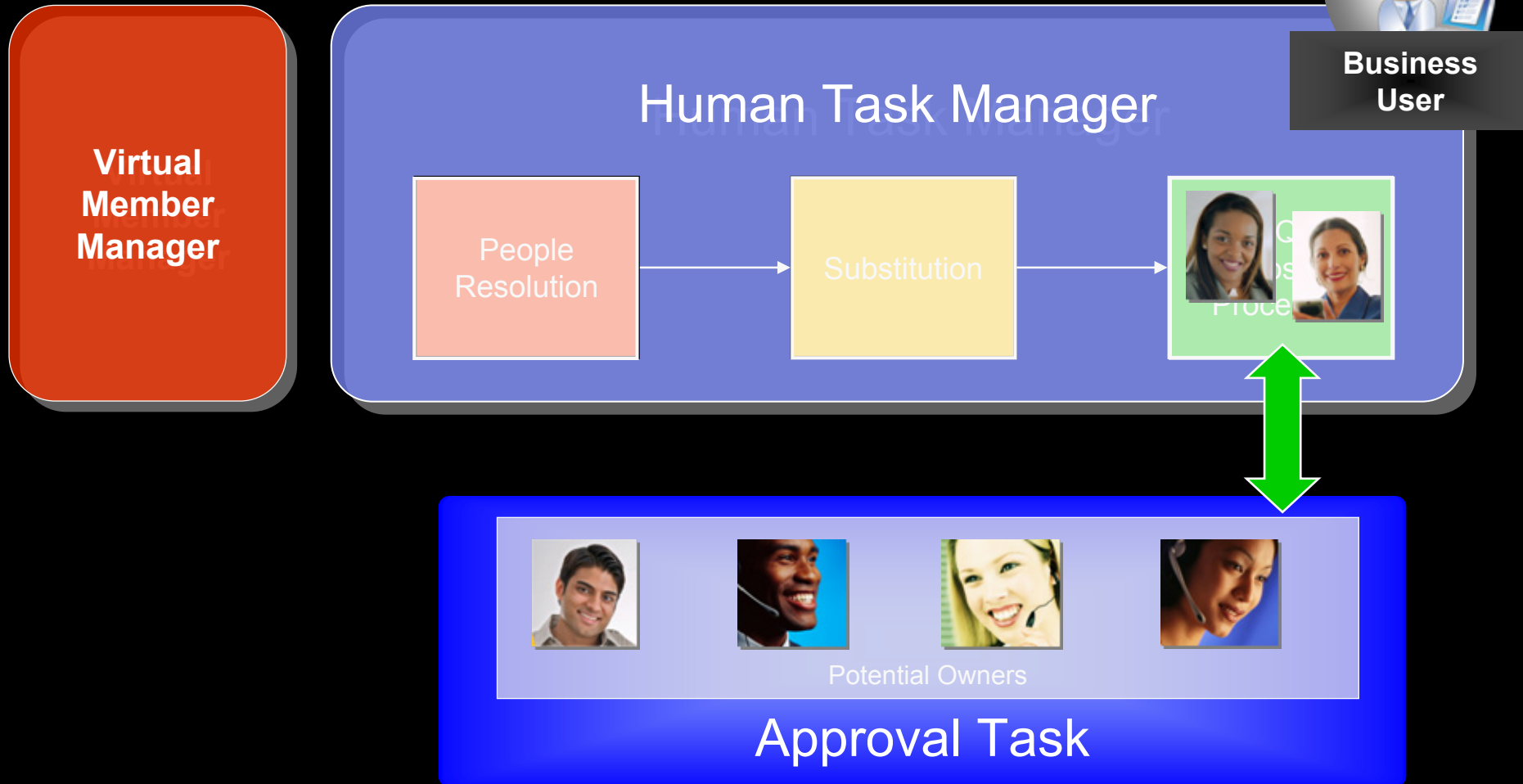


Business User



Assigning People to Human Tasks

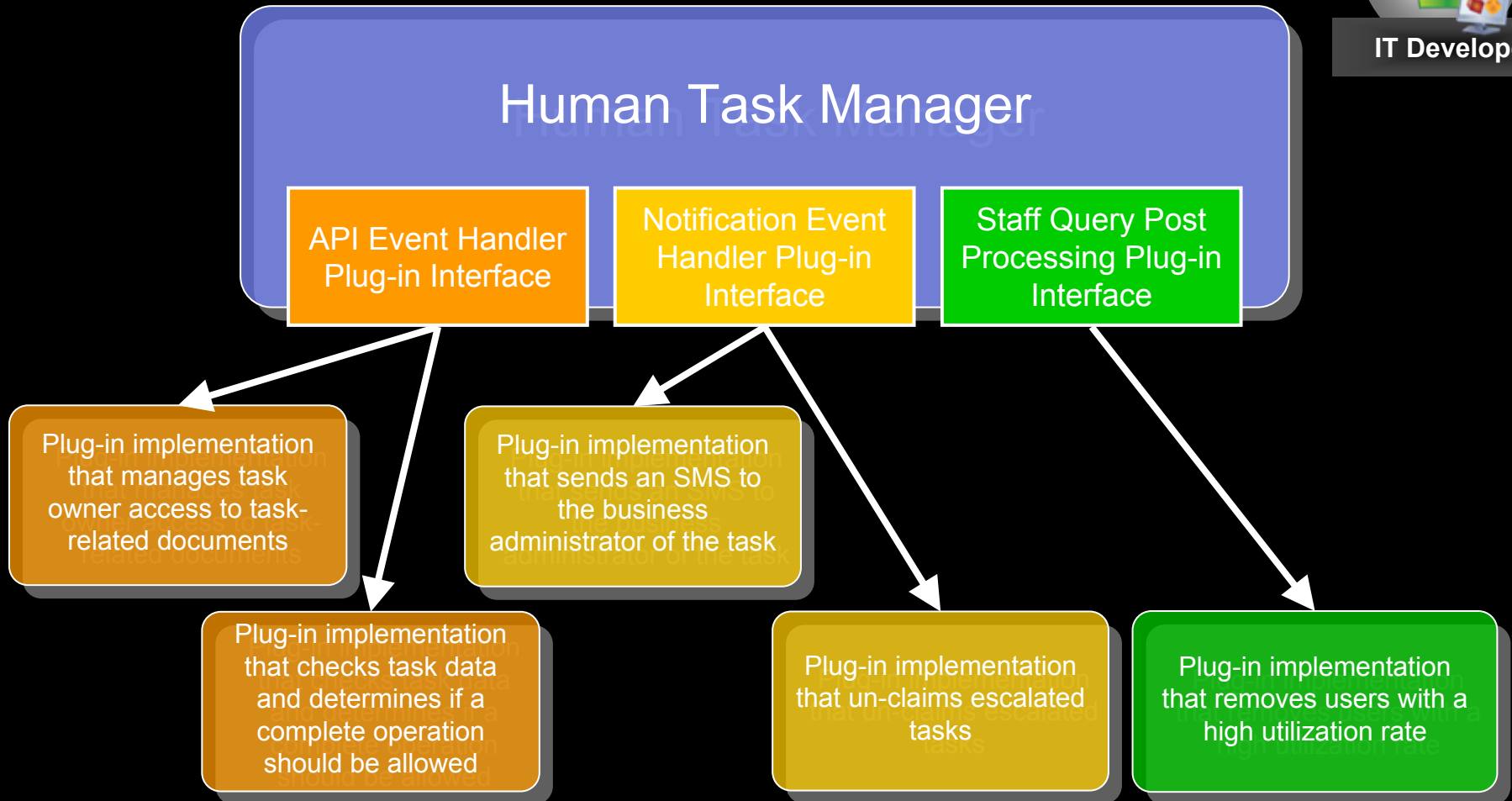
People resolution, substitution, post-processing



Human Task Manager SPIs and Plug-in interfaces



IT Developer



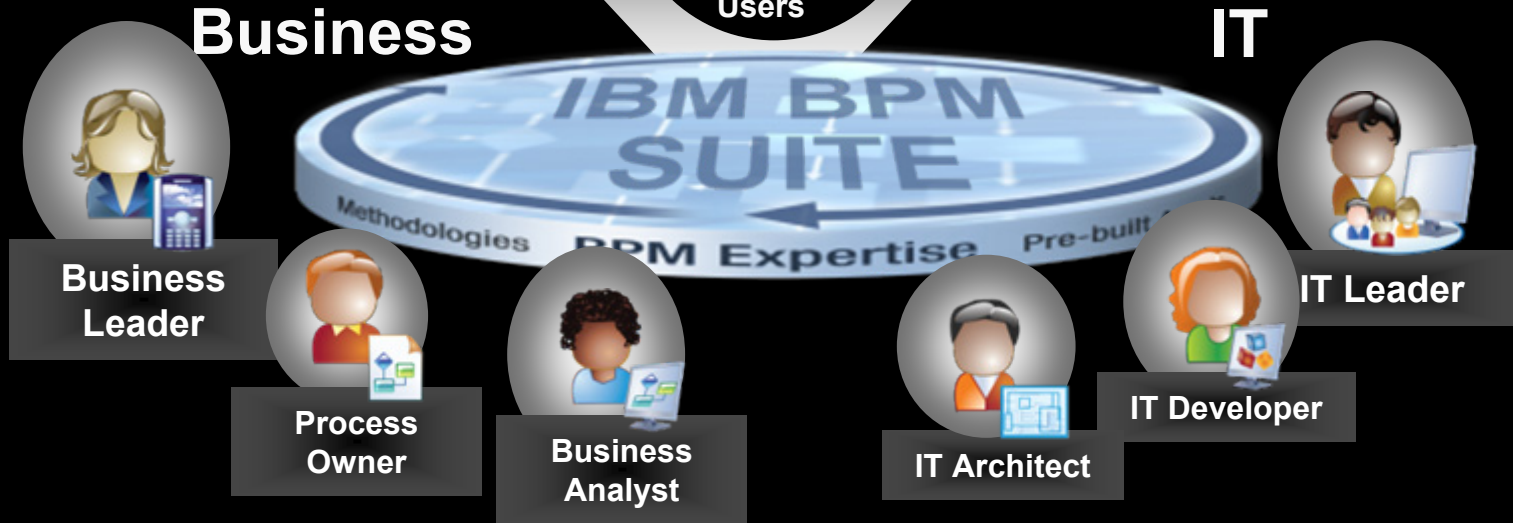
Collaborate and act through role-based spaces in a unified user interface for BPM

Business spaces powered by WebSphere

Facilitate collaboration across the BPM lifecycle and enable the business users with the “art of the possible”.



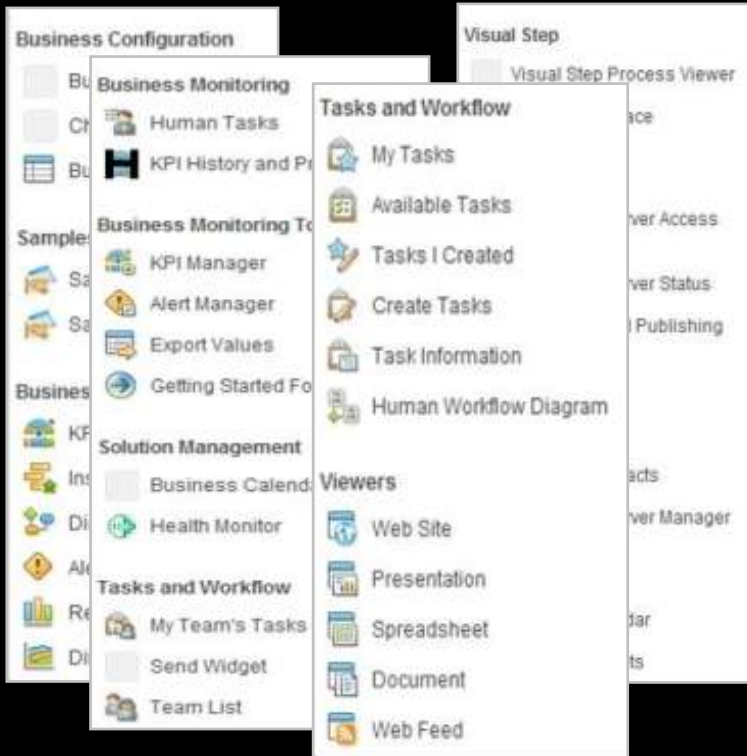
Enable the rapid creation of the end user experience together with the business solution, exploiting the full BPM portfolio



Get immediate out-of-the-box experience and faster time-to-value

Compose user interfaces from rich set of widgets

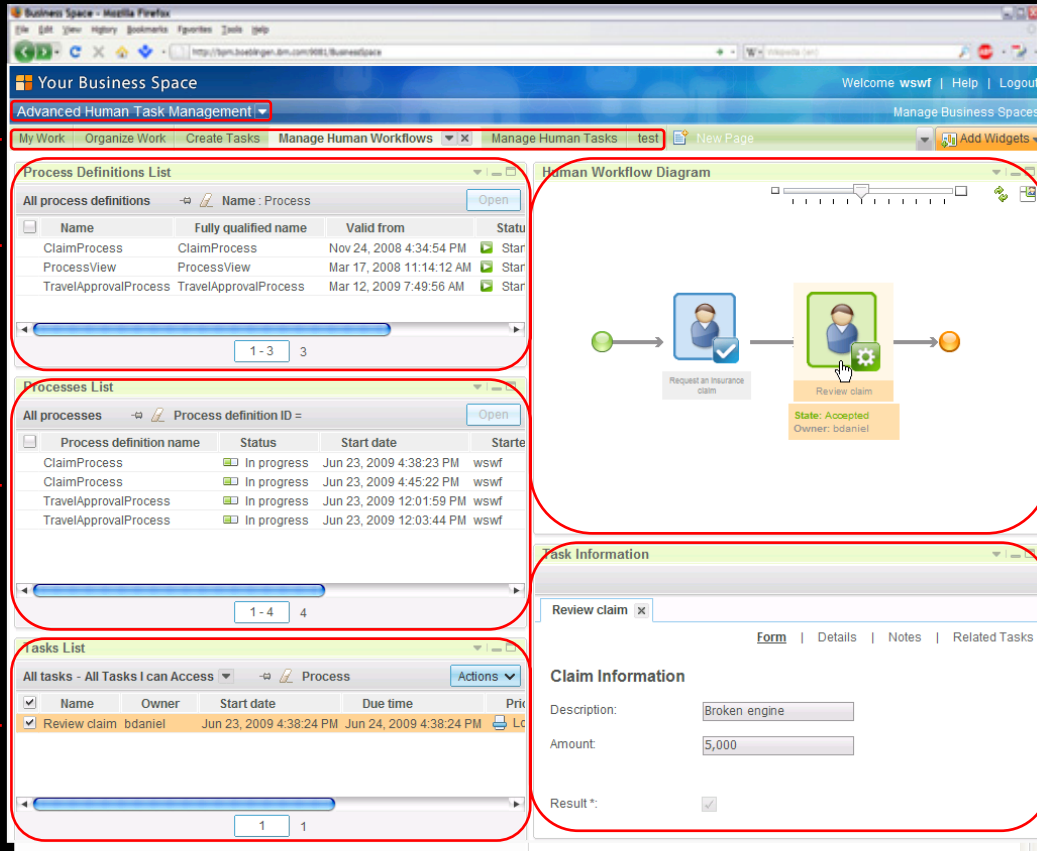
Jump start with templates for common use cases



Role-based business space templates span the entire suite and multiple products ... all based on the iWidget specification

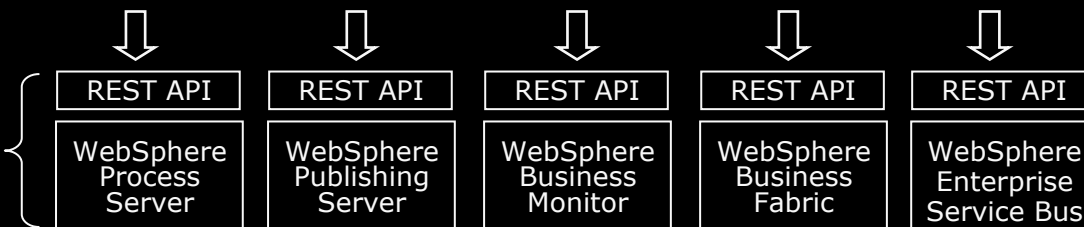
Business Spaces powered by WebSphere Architecture at a Glance

- Spaces
- Pages
- Widgets



- Common UI infrastructure shipped with BPM products
- Web Browser based rich internet application (RIA)
- Views built using mashup technology that integrate on the glass
- A user interface that's customizable by business users
- Widgets backed by REST access to runtimes

BPM REST Platform



Business Space for Human Workflow

Tabular view and pagination based on Query Tables

- **Tabular** view of task list incl. business data

- **Jump** to an arbitrary page of the task list

The screenshot displays the IBM Business Space interface. At the top, there's a navigation bar with 'My Space' and 'Manage Business Spaces'. Below it, a 'Tasks List' widget is shown, containing a table of travel approvals. The table has columns for 'Traveler Name', 'Destination', 'Duration', and 'Cost Estimate'. The first row is selected, and the pagination controls below it show '1 - 6' and '10' pages, with a red box highlighting the '1 - 6' and '10' area. Below the table, there's a 'Task Information' section with a form for 'ApproveTravel' and a 'Human Workflow Diagram' showing a process flow from 'RequestApproval' to 'ApproveTravel'.

Traveler Name	Destination	Duration	Cost Estimate
<input checked="" type="checkbox"/> Batch, Michel	Miami	40	40000
<input type="checkbox"/> Boss, Steffi	Peking	22	2457
<input type="checkbox"/> Forrest, Diana	Hamburg	5	999
<input type="checkbox"/> Hunter, Andreas	London	2	2222
<input type="checkbox"/> Hunter, Andreas	Zurich	5	270
<input type="checkbox"/> Munch, Elke	Vienna	5	550

Exploitation of Business Calendars

Introduction

- Calendars are used with processes and human tasks to calculate durations
 - For example, to calculate the duration a process should wait in a wait activity, the duration it takes for a human task to become overdue, or the duration until an escalation fires
- WebSphere provides a built-in calendar service that manages **contiguous time**



- Business applications require that time be specified in a way that takes into account **business constraints**, such as hours of operation, or holidays.
 - For example, a modeler would like to be able to specify that a human task be escalated if not claimed within 4 business hours, or that a human task becomes due after 4 business days.
- **Business Calendars** are calendars that manage **non-contiguous time**



Business Calendars

Human Task Example



IT Developer

Build Activities Properties Problems Servers Console Hierarchy

Collaboration Task - TaskUsingCalendar

Calendar type: CorporateCalendar {http://CalendarTest}

Duration until task is overdue:

1 Days 0 Hours 0 Minutes 0 Seconds

Duration until task is deleted:

Business Calendar CorporateCalendar

General

Time Intervals

Select a time interval to modify or add a new one

- Availability for 2008
- Exclude weekends
- Exception - Xmas
- Exception - New Year

Add Interval

Add Exception

Duplicate

Include Calendar

Exclude Calendar

Remove

Details for the Selected Time Interval

Schedule the available period

Availability for 2008

Schedule: Daily [Show the examples](#)

First occurrence

Begins On: Tuesday, January 1, 2008 9:00:00 AM For one day

Ends On: Tuesday, January 1, 2008 5:00:00 PM

Duration: 8 hr

Repeat daily

Every: 1 Day(s)

Repeat until: Dec 31, 2008 5:00:00 PM

Business Calendars

Managing Business Calendars

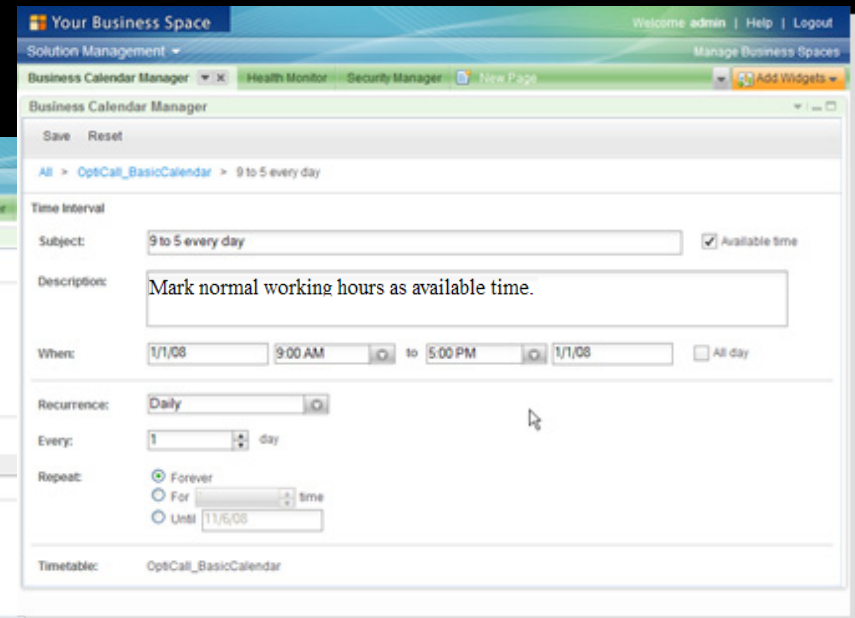
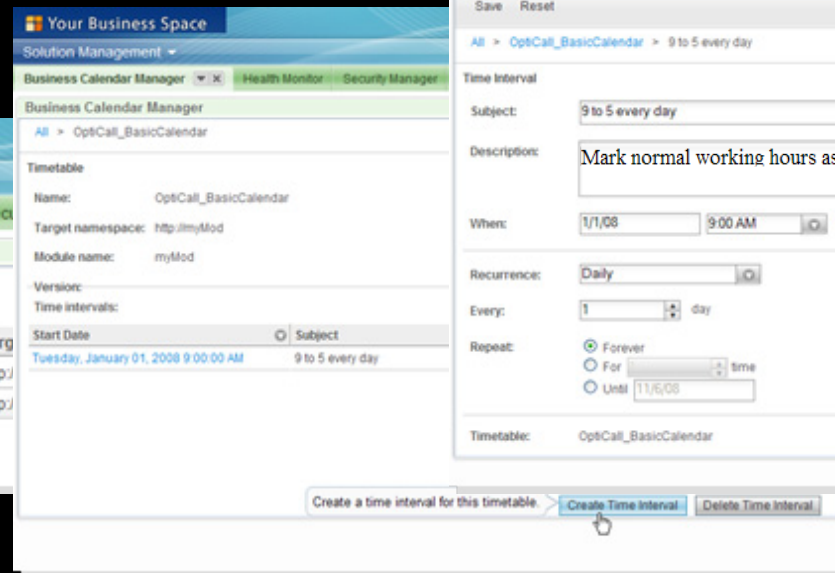
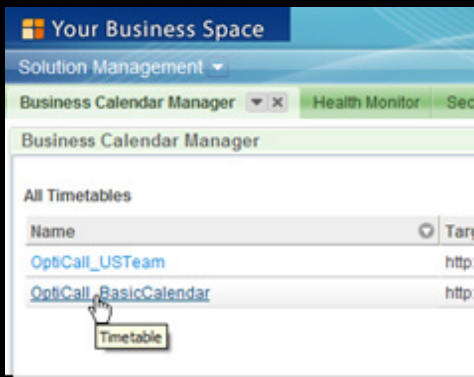


Business User

- Business Calendar widget allows users to work with business calendars
 - List calendars accessible to currently logged in user
 - Create, Read, Update, Delete calendar entries (assumes proper authorization)
 - View calendar details

Benefits

- Work with Business Calendars from within Business Space
- More flexibility: Update definition of time slots at runtime



Human Task History

Example – Task Information Widget in Business Space

The screenshot displays the Business Space interface with a 'Task Information' widget. The widget shows a task titled 'Approval' with a status of 'Accepted'. The task details include the owner 'bman1', start date '9/30/08 6:38 PM', and priority '5'. A history table shows the sequence of events from task creation to result modification.

Task Information

Submit Save Actions

ImageTypeSub x Approval x

Form Details Notes | Related Tasks

Additional Information

bman1 requests your approval
 Owner bman1
 Start date 9/30/08 6:38 PM
 Status Accepted
 Priority 5

History

State	Name	Timestamp
Task created	bdaniel	9/30/08 5:58 PM
Task started	bdaniel	9/30/08 5:58 PM
Task accepted	dedwards	9/30/08 5:58 PM
Task returned	dedwards	9/30/08 6:38 PM
Task accepted	gpfa	9/30/08 6:38 PM
Task result modified	gpfa	9/30/08 6:39 PM



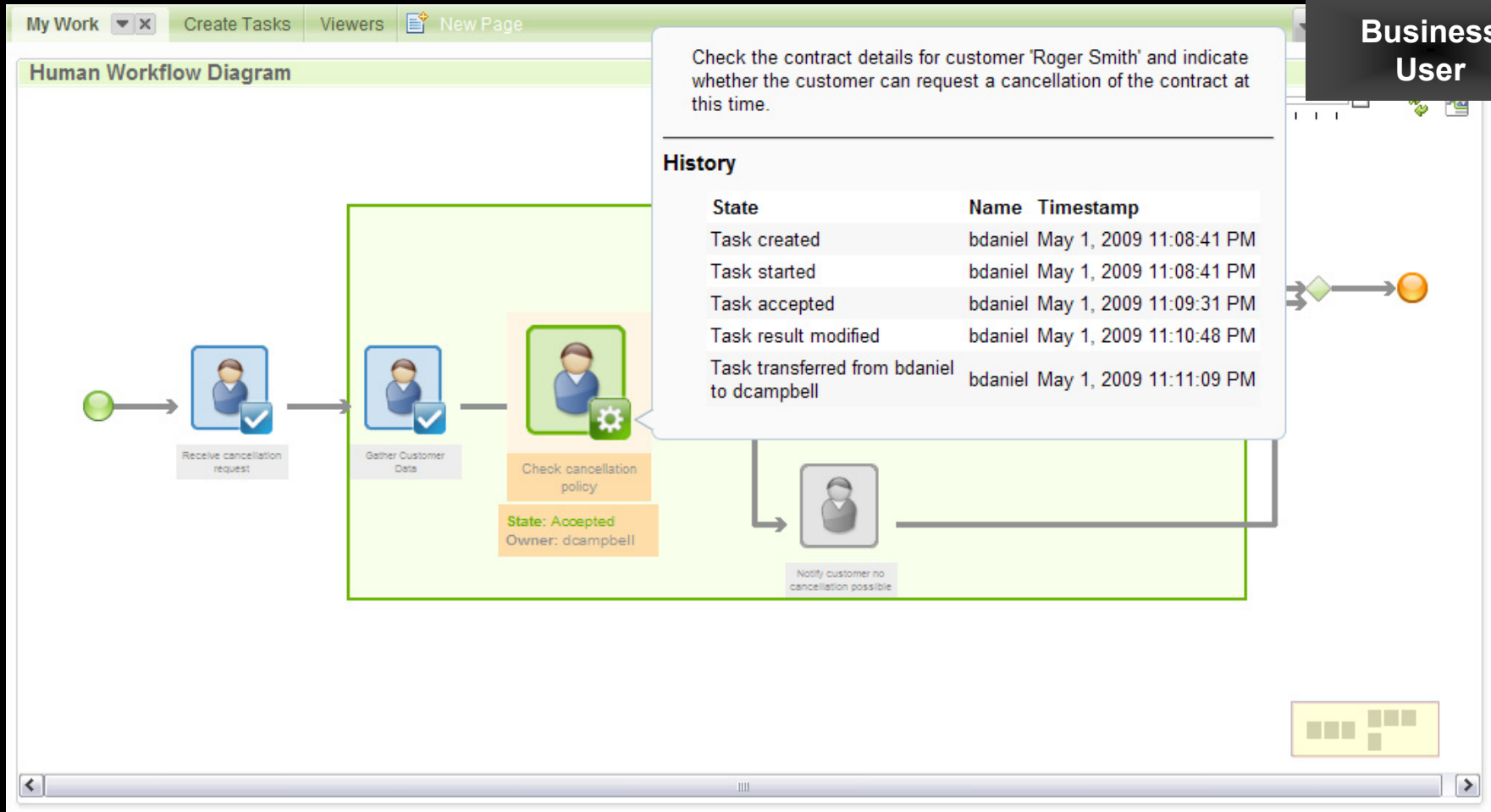
Business User

Human Task History

Example – Task History in Human Workflow Diagram

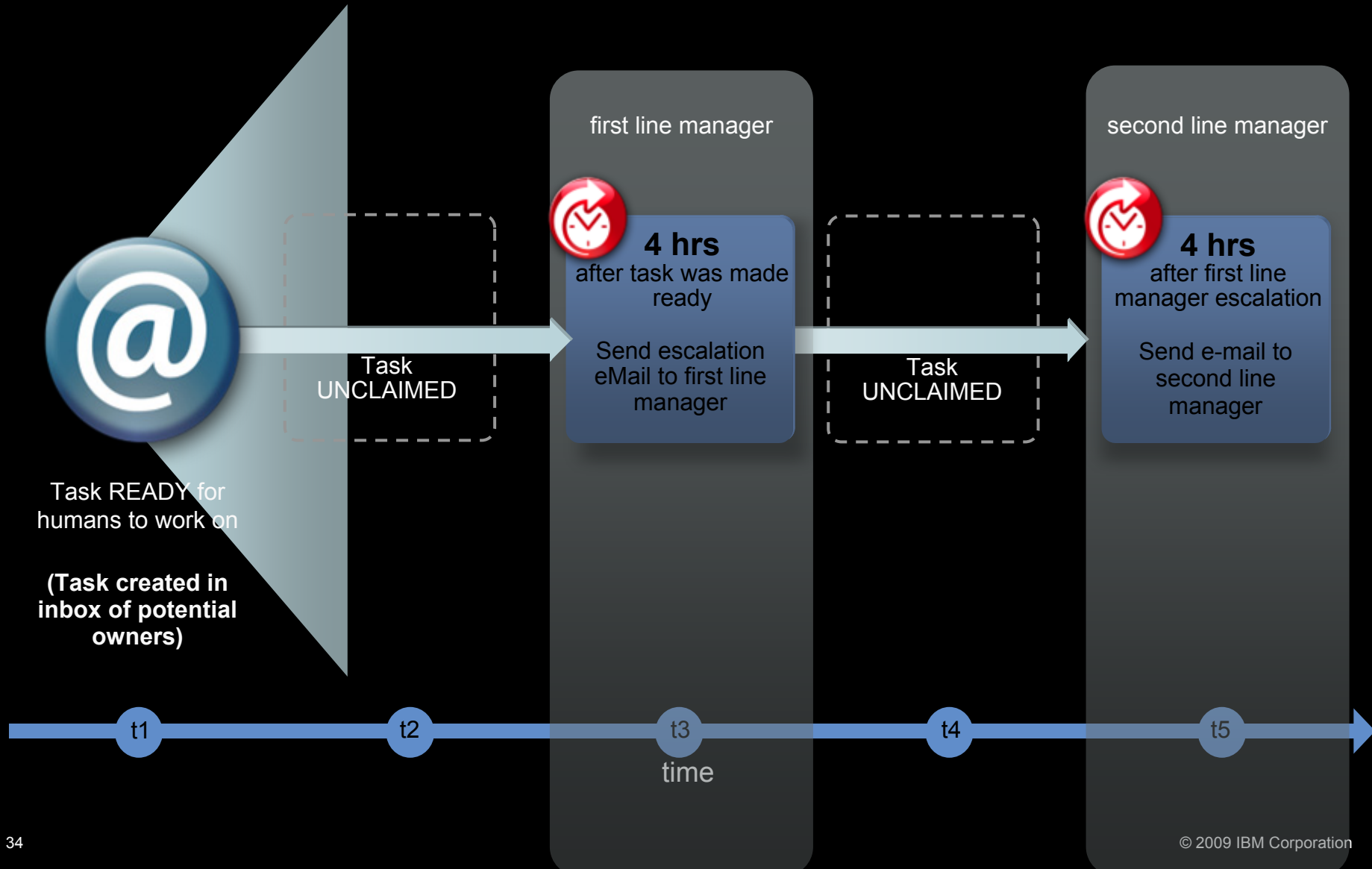


Business User



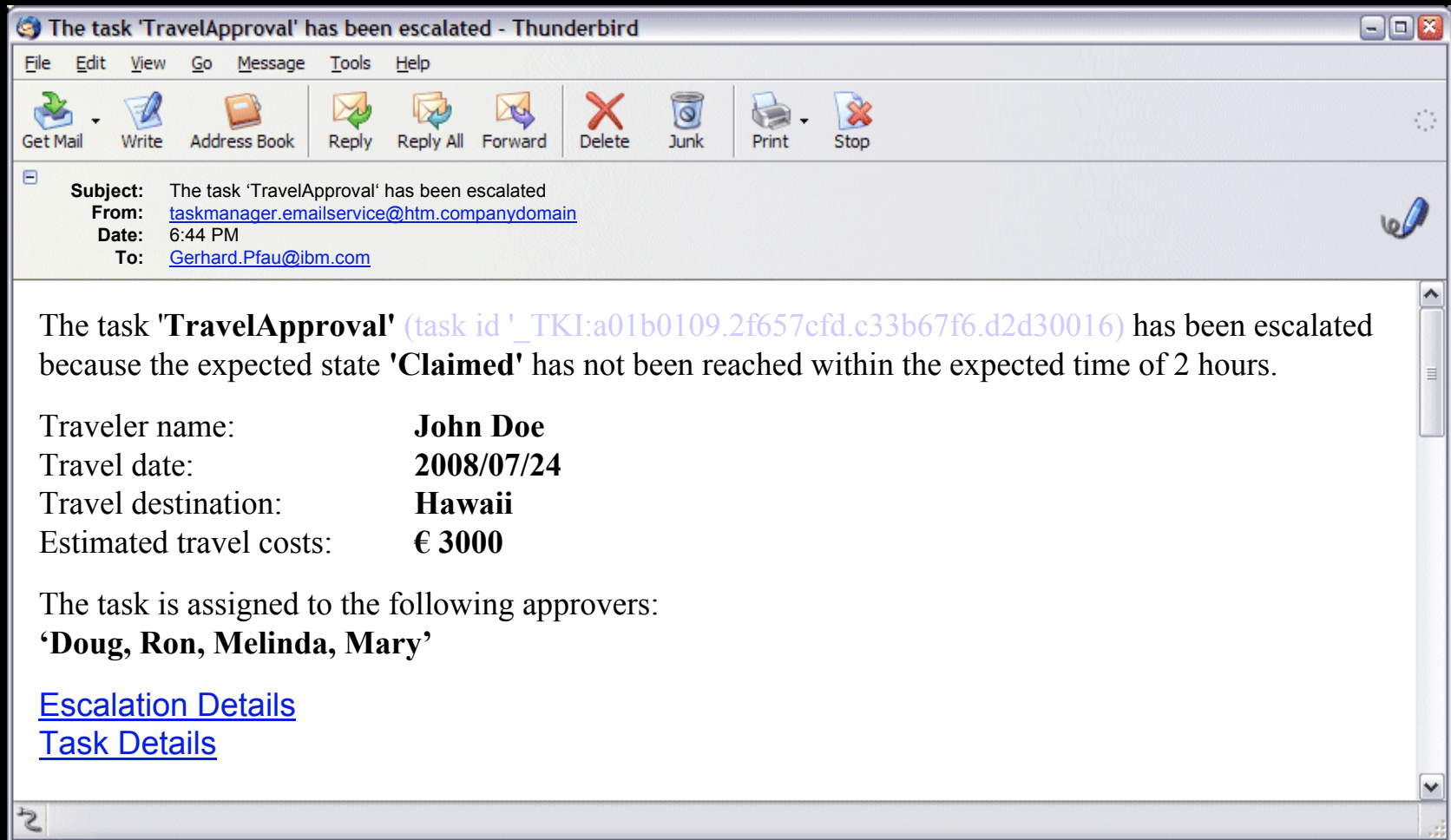
Human Task Escalation

Example



Human Task Escalation

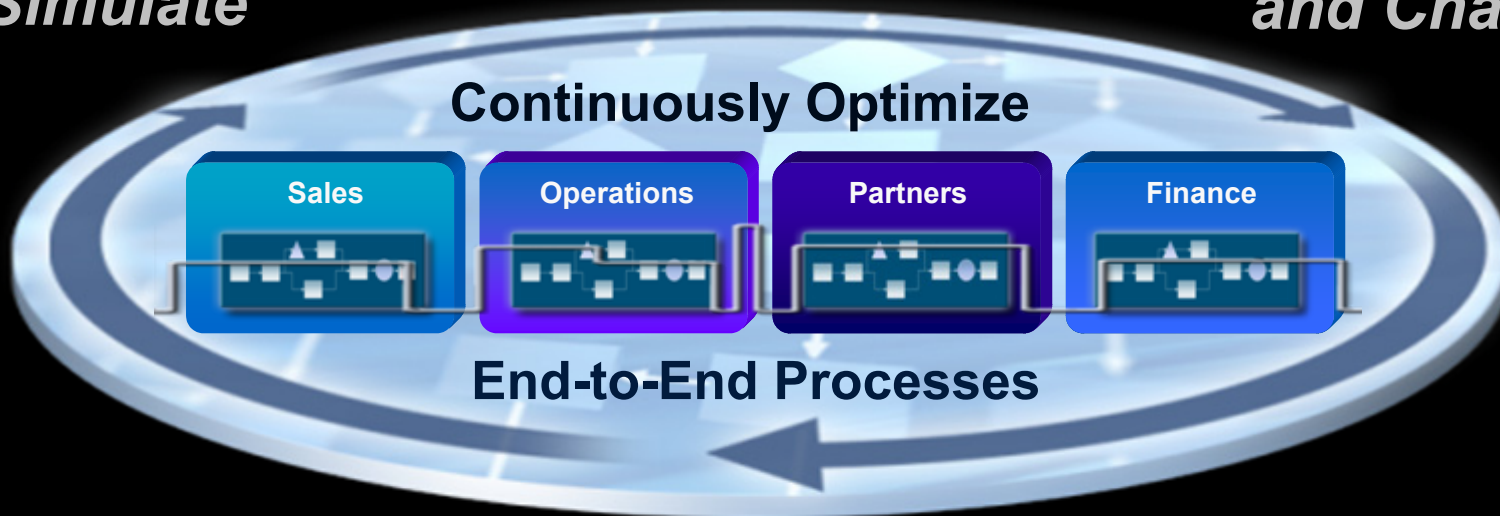
Customizable e-mail Notification



BPM from IBM Empowers You To Embrace Change and Continuously Optimize Your Business

Model and Simulate

Rapidly Deploy and Change



Monitor, Predict and Act

IBM BPM Suite products and services bring additional BPM value

Understand, Improve Business Operations with BAM

Measuring Processes Allows You to Establish “As-Is” Baseline

It's difficult to improve process performance if you don't know how your business is currently performing



Measure transaction volumes and work queues to identify “as-is” state



Business Leader



Set goals and KPI's based on operational or departmental objectives



Process Owner



Continuously monitor KPIs and modify as necessary to achieve desired goals



Business Analyst

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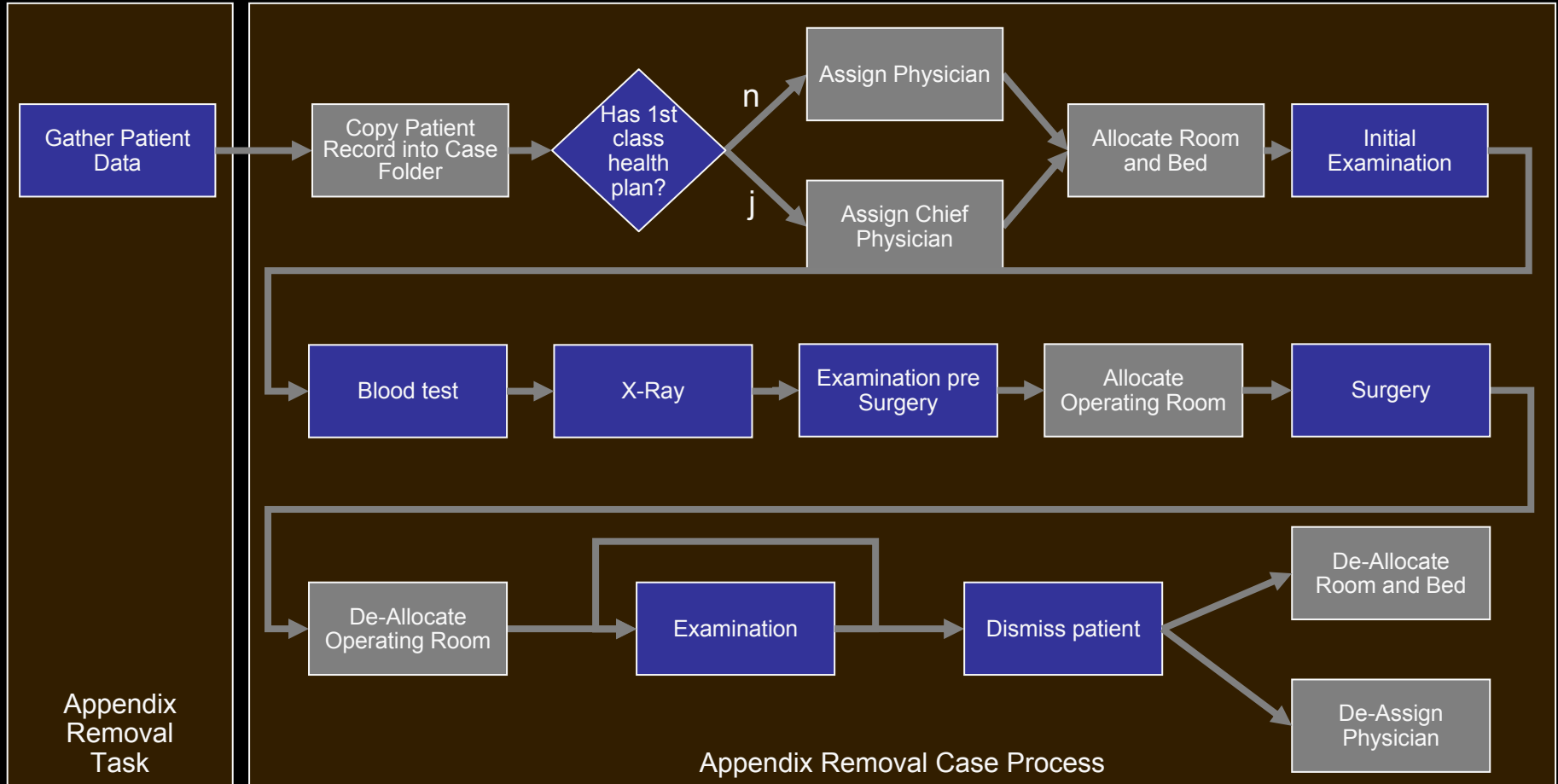
Dynamic Human Workflows a.k.a. Case Handling

Introduction

- **Case Handling** is a paradigm that provides **flexible business process support for knowledge workers**, adding support for business scenarios with the following characteristics
 - **Exceptions make the rule.**
 - Business users are **domain experts** and they **know what they are doing!**
A case handling infrastructure has to support them to get the job done, providing guidance without being too constraining.
 - While business process navigation is based on the modeled control-flow, the business scenarios demand
 - the ability for dynamic changes including the ability to **skip** or **redo** one or many human activities
 - support for adding human activities on the fly
- **Dynamic Human Workflows** enable **Case Handling** and other advanced human workflow scenarios

Dynamic Human Workflows a.k.a. Case Handling

Example Scenario – Healthcare Case Process



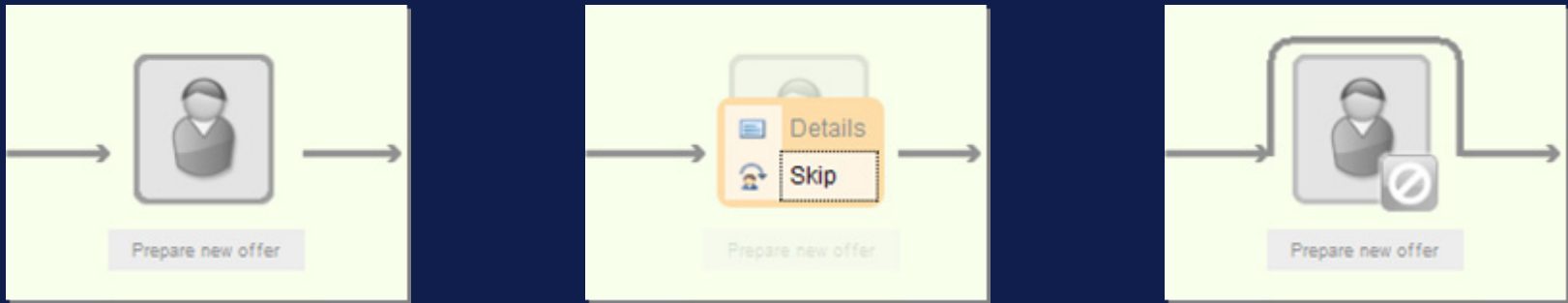
Dynamic Human Workflows a.k.a. Case Handling

Dynamicity Support for Business Users – Skip & Redo



Business User

Skipping Activities

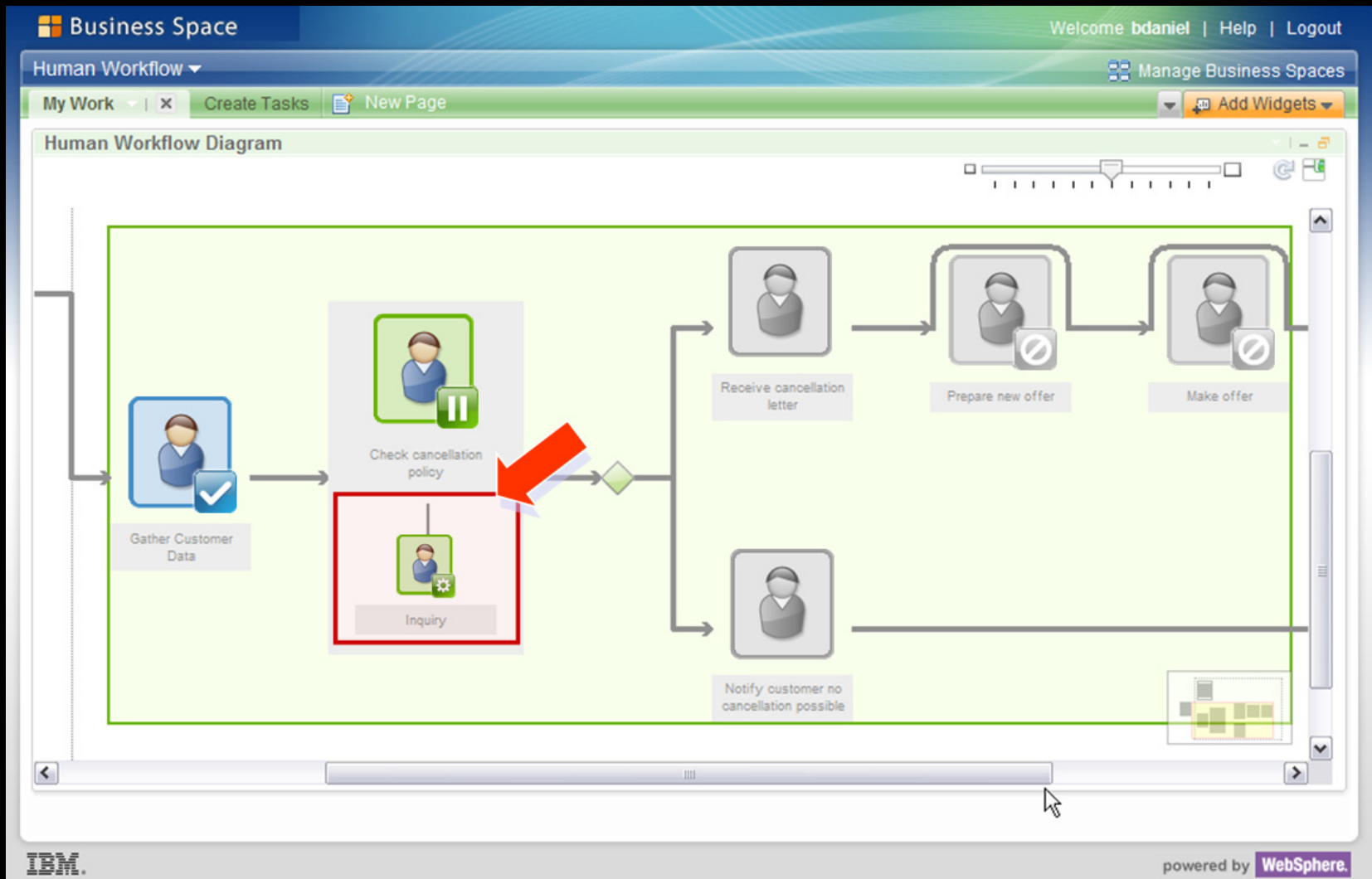


Redoing Activities



Dynamic Human Workflows a.k.a. Case Handling

Ad-hoc Creation of Sub-tasks



Dynamic Human Workflows a.k.a. Case Handling

Folder and Attachments



Business User

The screenshot displays the IBM BusinessSpace Human Workflow interface. At the top, the 'BusinessSpace' logo is visible. The main area shows a task titled 'Make offer' with a 'Task Information' header. Below this, there are 'Submit' and 'Save' buttons. The task description reads: 'The customer has requested a cancellation. A new offer has been prepared for the customer. The customer has accepted the offer.' A status indicator shows 'Accepted *' with a checked checkbox. A 'References to Documents' section lists three items: 'Contract details', 'Cancellation Letter', and 'New contract offer'. A tooltip is visible over the 'Cancellation Letter' link, displaying the text: 'Last modified by 'admin' on 10/2/08 4:02 PM.' The interface also includes a navigation bar with 'Form', 'Details', 'Notes', and 'Related Tasks' options, and a table with 'Add', 'Edit', and 'Remove' actions.

Dynamic Human Workflows a.k.a. Case Handling

Programmatically adding attachments to the case folder

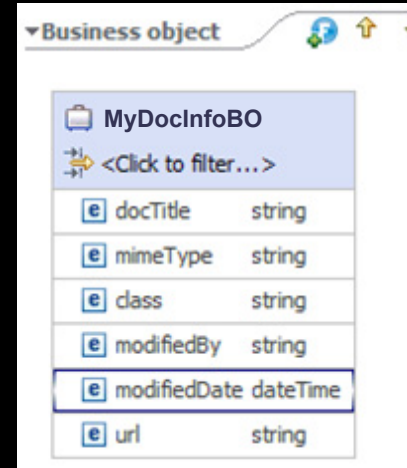
- You can pre-populate a case folder with attachments by providing the URL of the attachment plus corresponding meta data in the `<attachmentInfo>` element using the following scheme:

```
<attachment>
  <attachmentInfo>
    <name>Cancellation letter</name>
    <accessType>URL</accessType>
    <contentType>image/jpeg</contentType>
    <contentCategory>MIME</contentCategory>
    <attachedAt>2009-10-16T09:05:32Z</attachedAt>
    <attachedBy>gerhard</attachedBy>
  </attachmentInfo>
  <value xsi:type="xsd:string">
    http://example.com/scannedDocs/G1F2E3D4C5.jpg
  </value>
</attachment>
```

Dynamic Human Workflows a.k.a. Case Handling

Programmatically adding attachments to the case folder

- Example BO for a Case Folder Attachment



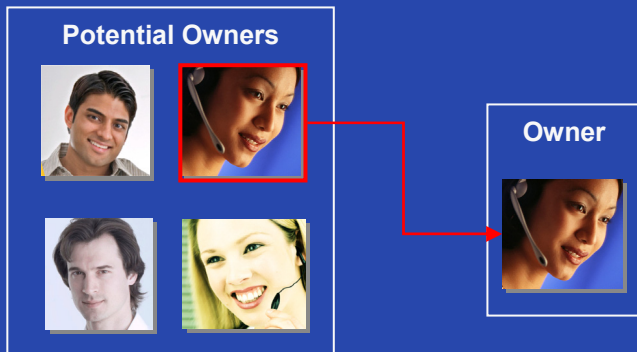
- Assignment logic

Assign From	⇒	Assign To
docInfo docTitle	⇒	folder attachment[1]/attachmentInfo/name
URL	⇒	folder attachment[1]/attachmentInfo/accessType
docInfo mimeType	⇒	folder attachment[1]/attachmentInfo/contentType
MIME	⇒	folder attachment[1]/attachmentInfo/contentCategory
docInfo modifiedDate	⇒	folder attachment[1]/attachmentInfo/attachedAt
docInfo modifiedBy	⇒	folder attachment[1]/attachmentInfo/attachedBy
docInfo url	⇒	folder attachment[1]/value

Parallel Routing Tasks

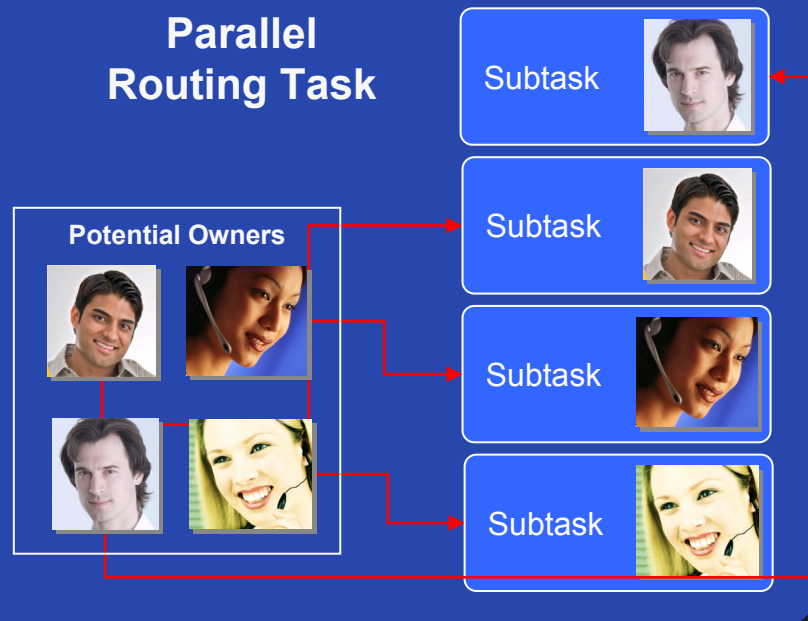
Model Parallel Approval and Voting Scenarios more easily

Simple Task



- Assigned to a group of users
- Each user sees the task on their group task list
- One of them chooses to work on the task and eventually completes it

Parallel Routing Task



- Assigned to a group of users
- A subtask is created automatically for each person in that group in parallel
- The result of the task is produced by aggregating the subtask's results
- An optional completion function allows to preemptively complete the task

The IBM Extreme Blue™ program



IBM

Building a Smarter Planet 

Extreme Blue Project 4
Context- and Situation-aware Human
Workflows

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Summary

- **“BPM enabled by SOA”** is the latest incarnation of IBM’s workflow and business process management technology
- WebSphere delivers “BPM enabled by SOA” and provides rich support for Human-centric BPM, SOA-based and grounded on open standards
 - Earlier releases already provide support for business critical functions like escalation, substitution, and sophisticated people assignment
 - Substantial enhancements have been added lately, like the new out-of-the-box **business user client**, exploitation of **business calendars**, improved **performance** and **consumability**, and the support for **dynamic business processes** a.k.a. case handling and **parallel routing**
- WebSphere Process Server addresses the complete spectrum – from lightweight, fully automated, straight-through processes over traditional human workflows to collaborative, dynamic business processes



NEW: White paper “Dynamic Human Workflows – Introduction and Best Practices”

- Want to learn more about the Dynamic Human Workflow and Case Handling capabilities in WebSphere Process Server?
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<http://www.ibm.com/support/docview.wss?rs=2307&uid=swg27016314>

Questions?

Thank You

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References and Further Readings

▪ Business Process Chorographer Online Documentation

- Online documentation: WPS 6.2 – InfoCenter Entry page
http://publib.boulder.ibm.com/infocenter/dmndhelp/v6r2mx/index.jsp?topic=/com.ibm.websphere.wps.620.doc/welcome_wps.html
- Online documentation: WPS 6.2 – Task Concepts
http://publib.boulder.ibm.com/infocenter/dmndhelp/v6r2mx/index.jsp?topic=/com.ibm.websphere.wps.620.doc/welcome_wps.html
- Online documentation: WPS 6.2 – Process Concepts
http://publib.boulder.ibm.com/infocenter/dmndhelp/v6r2mx/index.jsp?topic=/com.ibm.websphere.wps.620.doc/welcome_wps.html

▪ General Information on Business Process Chorographer

- Business Process Management Samples & Tutorials
<http://publib.boulder.ibm.com/bpcsamp/index.html>
- BPC 6.1 Concepts and Architecture
<http://www.ibm.com/support/docview.wss?rs=2307&uid=swg27012826>
- BPC 6.1 Programming Model
<http://www.ibm.com/support/docview.wss?uid=swg27012602>
- Business Process Choreographer on developerWorks
<http://www7b.boulder.ibm.com/wsdd/zones/was/wpc.html>

▪ Other Interesting Papers

- Business process choreography in WebSphere: Combining the power of BPEL and J2EE
<http://researchweb.watson.ibm.com/journal/sj/432/kloppmann.html>
- IBM Systems Journal Issue on Service Oriented Architecture
<http://researchweb.watson.ibm.com/journal/sj44-4.html>

▪ Performance

- Query Table Builder support pack PA71
http://www.ibm.com/support/docview.wss?rs=693&context=SSBTEG&q1=utility&uid=swg24021440&loc=en_US&cs=utf-8&lang=en
- Whitepaper: WPS 6.1 - Performance Tuning Automatic Business Processes for Production Scenarios with DB2
<http://www.ibm.com/support/docview.wss?uid=swg27012639>
- Technote: Improving the performance of complex BPC API queries on DB2
<http://www.ibm.com/support/docview.wss?uid=swg21299450>

▪ Standards

- Standard: Web Services Business Process Execution Language Version 2.0
<http://docs.oasis-open.org/wsbpel/2.0/OS/wsbpel-v2.0-OS.pdf>
- Specification: WS-BPEL Extension for People
<http://www.ibm.com/developerworks/webservices/library/specification/ws-bpel4people/>
- Specification: WS-BPEL 2.0 Extensions for Sub-Processes
<http://www.ibm.com/developerworks/webservices/library/specification/ws-bpelsubproc/>
- Specification: BPELJ: BPEL for Java technology
<http://www.ibm.com/developerworks/library/specification/ws-bpelj/>

▪ Versioning

- White paper: Versioning business processes and human tasks in WebSphere Process Server
http://www.ibm.com/developerworks/websphere/library/techarticles/0808_smolny/0808_smolny.html

Visit the BPM Samples and Tutorials page!

The screenshot shows a Mozilla Firefox browser window titled "Business Process Management Samples - Mozilla Firefox: IBM Edition". The address bar displays the URL <http://publib.boulder.ibm.com/bpcsamp/>. The page content includes a navigation pane on the left with a tree view of topics, a main content area with introductory text and links, and a search bar at the bottom.

Business Process Management Samples & Tutorials - Version 6.2

These samples demonstrate features developed in IBM® WebSphere® Integration Developer and deployed on IBM WebSphere Process Server and IBM WebSphere Enterprise Service Bus (WebSphere ESB). They help you work with various product features to develop your own applications.

Each sample focuses on a specific feature or modeling pattern and leaves aside other aspects. Features like security and error-handling are omitted, unless they are discussed as the topic of a sample.

Documentation, the **source code**, and an **enterprise application** is provided for each sample. After you have configured your system, you can run the samples on your system. You are welcome to reuse the sample code in your own solution.

The **Travel booking**, **Claims handling**, and **Order processing** samples can be found in the **Samples from the Samples Gallery** section.

Click the topics in the navigation pane to expand the table of contents and see the samples for the selected section.

In a sample, use the **menu** to browse the documentation and to go to the download section:

Custom JSPs

| Introduction | Overview | Code Review | Build it Yourself | Download |

Users who are new to business process development with Business Process Choreographer are recommended to explore the samples in the **Getting started** section.

Explore **Resources** for more information, such as specifications, white papers, technical articles and the WebSphere information center.

To see an animated demonstration how to start and complete the Hello World sample, follow this link:
[Animation: Watch the Hello World sample](#)

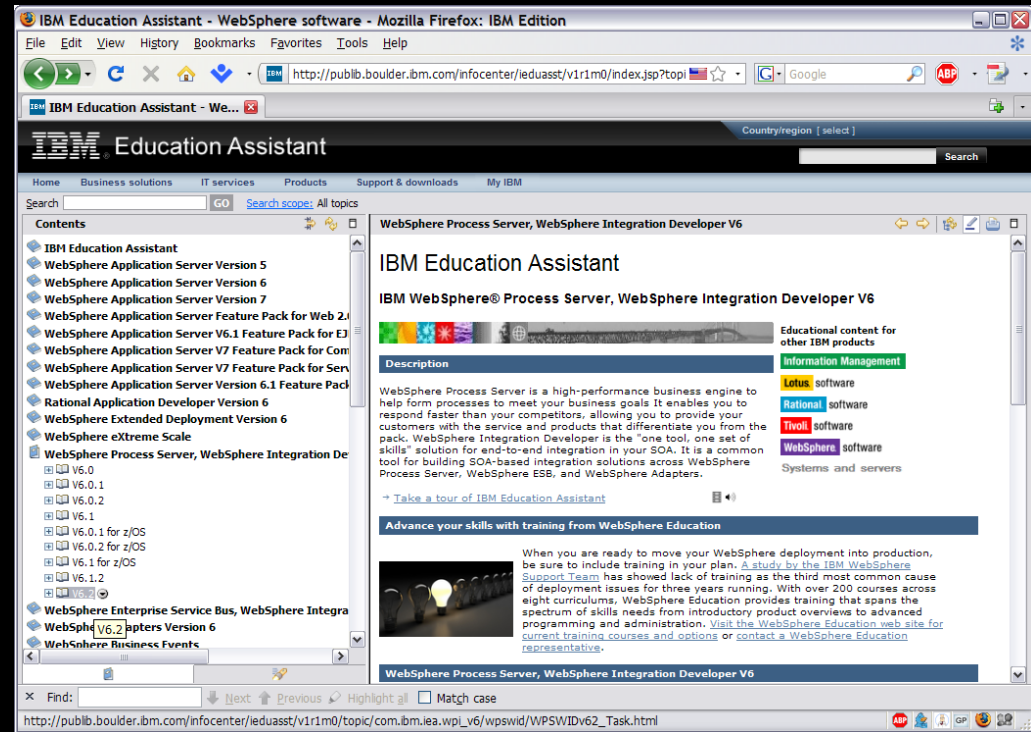
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- Building integration applications – end-to-end scenario



IBM Education Assistant - WebSphere software - Mozilla Firefox: IBM Edition

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- WebSphere Application Server V7 Feature Pack for COM
- WebSphere Application Server V7 Feature Pack for Security
- WebSphere Application Server Version 6.1 Feature Pack for Security
- Rational Application Developer Version 6
- WebSphere Extended Deployment Version 6
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 - v6.0.2 for z/OS
 - v6.1 for z/OS
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 - v6.1.2
- WebSphere Enterprise Service Bus, WebSphere Integration Developer V6
- WebSphere Integration Developer V6.2 adapters Version 6
- WebSphere Business Events

WebSphere Process Server, WebSphere Integration Developer V6

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IBM WebSphere® Process Server, WebSphere Integration Developer V6

Description

WebSphere Process Server is a high-performance business engine to help form processes to meet your business goals. It enables you to respond faster than your competitors, allowing you to provide your customers with the service and products that differentiate you from the pack. WebSphere Integration Developer is the "one tool, one set of skills" solution for end-to-end integration in your SOA. It is a common tool for building SOA-based integration solutions across WebSphere Process Server, WebSphere ESB, and WebSphere Adapters.

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