BPM 2.0 – A REST based architecture for next generation workflow management

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Overall Presentation Goal

Understand **BPM as a Service** and how to get ready for it
Business Process Management (BPM)
The need for both Traditional BPM Suites and Business Mashups

BPM allows business to change and innovate through their business processes

Strategic, IT built applications

Short-lived, relatively simple applications based on short-term business needs

These situation applications take too long to be developed by a company’s IT department

Power users with domain knowledge can use a browser to create these business mashups
Everything as a Service
What are we talking about?

Wikipedia defines …

Software as a service (SaaS) is a model of software deployment where an application is hosted as a service provided to customers across the internet.

Everything as a Service (EaaS) is a concept of being able to call up re-usable, fine-grained software components across a network. It is a subset of cloud computing.

Cloud Computing is Internet-based ("cloud") development and use of computer technology ("computing"). The cloud is a metaphor for the Internet and is an abstraction for the complex infrastructure it conceals.
BPM as a Service Defined

Five Key Concepts

- Model and *execute* processes in a hosted environment
- Integrate with both inside the firewall data and internet services
- Business users collaborate to create the business processes with a browser using RIA technologies
- Monitor, administer, rate, discuss processes over the internet
- Web-based reporting and monitoring (BAM) capabilities

http://leadershipbpm.wordpress.com/2008/10/06/bpm_saas/ (Rashid Khan)
What is BPM Zero?

- Incubator Project that started early this year to prove out the above points
- Allow organizations to build their first BPM application with zero IT overhead and show immediate business value
- Hosted in the Cloud - nothing to install or configure
- Web-based tools to model, run and monitor business processes
- The process is the application – compose (mashup) new applications from existing assets
- Up and running in a few days
BPM as a Service
Modeling Business Processes

- Business Process Modeling Notation (BPMN)
  - Provides a graphical notation to allow organizations to communicate their business procedures in a standard manner
- OMG & BPMI.org

A Brief History:

- BPMN 1.0 (May 2004) – defines a graphical notation for expressing business processes that is intuitive to business users
- BPMN 1.1 (Feb 2008) – minor clean up and adding a few new constructs
- BPMN 2.0 – OMG issues RFP in June 2007
  - Provides interchange format that can be used to exchange BPMN process definitions between different tools
  - Enables portability of process definitions – users can take business process definitions from one tool and use it in another
BPMN Common Elements: Tasks, Connections, Events, Lanes, Pools

Connection between Tasks:
Sequence Flow (solid line)
Message Flow (dashed line)

Events are represented as circles (start, end, intermediate)

Lanes and Pools can be used to represent organization and roles

Sales & Distribution are “Lanes” inside the Supplier “Pool”
BPMN Common Elements: *Subprocesses, Gateways, Loops*

Gateway is used to determine decision (Or, And)

Subprocess with in-place expand and collapse

Compound activity with finer level of details

Default condition path identified by a diagonal slash

Looping indicator indicates that an activity (subprocess or task) can loop
BPMN workgroup chair and specification editor since inception

Derek Miers (BPM Focus)

Released in Sept 2008

Stephen White (IBM)
BPMN Tools Vendors

- Over 50 BPMN implementations listed on OMG web site:
  - IGrafx, Lombardi, Appian
- Free BPMN Editors:
  - BizAgi, Intalio, Savvion

IBM WebSphere Business Modeler added BPMN support in Version 6.1.2
DEMO

- Web Based BPMN Editor
- BPM as a Service
  - Modeling Process
  - Use RIA technologies
BPM as a Service
From Modeling to Execution

- BPMN editor has “business palette” where popular services are pre-built and can be integrated into the process flow as **Tasks**

- New applications can be mashed together from these assets – e.g. Feeds, Forms, Collaboration Assets, Documents, Business Rules

- Domain specific extensions can be added by ISVs
Drag and drop business activities from palette on to the editor

Property sheet to fill in details

Services discovered via Catalogs
## Target Scenarios and Applications

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| 6  | Prototyping - create a prototype quickly to support a new process in your company                      | *Travel Request Approval*  
*Tennis Ladder Challenge*                                           |
|    | Show a few screens, run quickly, evolve it with real time dashboards                                   |                                                                          |
Scenario 1: Form Based Approvals

Use Case: Vacation Request

BPMN: Pools
Represent different roles and authorization

BPMN: Sequence Flow Looping
Connect a sequence flow to an upstream object (instead of using a while loop)
Use Widgets to compose a Business Mashup

Example: Employees Mashup

A widget is a small program or piece of dynamic content that can be easily placed into a web site.

Lotus Mashups is a browser-based tool that supports assembly of situational applications by non-technical users.
Behind the Scenes: Process Framework

Example: Managers Mashup

Process framework coordinates the visual and data elements and **keep the state of the process in progress**.

A manager can create a business mashup that can manage work items by wiring together a number of widgets.

(Process List, My Tasks, Task Information)
Scenario 2: Collaborate Ad-hoc Workflow

*Use Case: Request for Proposal*

Workflow with both rigid steps (*structured*) and ad-hoc steps (*unstructured*)

Lotus Activities for *unstructured* collaboration

Collaborate with teams that can be created on the fly to create the proposal inside Activities

**BPMN: Subprocess**

Group together a number of sub-activities that execute in Lotus Connections
Human Centric, ad-hoc collaboration in Lotus Activities

Make request for a proposal

When activities are completed, trigger next step to send email and to archive the proposal
Scenario 3: Decision Making with Business Rules

Use Case: Stock Order Validation

Use *Business Rules* in business processes to adapt to changing market conditions more rapidly.

**Business Rule: Bad Clients**
- Code:
  ```
  if the name of customer is "John Smith"
  then
    set the status of report to "Rejected";
    set the reasons of report to "Bad Client";
  ```

**Business Rule: Currency Restriction**
- Code:
  ```
  if the currency of order is "Euro"
  then
    set the status of report to "Rejected";
    set the reasons of report to "Customer Preferences";
  ```

**Business Rule: Order Amount**
- Code:
  ```
  if the amount of order is less than 100,000
  then
    set the status of report to "Pending";
    set the reasons of report to "Customer Preferences";
  ```

**Business Rule: Stock Name**
- Code:
  ```
  if the stock of order is "Company X"
  then
    set the status of report to "Blocked";
    set the reasons of report to "Black Listed Stocks";
  ```

**ILOG JRules:**
- Authoring of rules in business language
- Support rule changes in response to market changes
- Manage rules throughout their life cycle, from creation through testing, deployment and retirement
ILOG Transparent Decision Services

Encapsulates a set of rules as a service that you can reuse (as a black box)

Stock Order Validation process accesses the *ILOG Decision Service* using a simple client call – e.g. Java
Scenario 4: Simple Transaction

Use Case: Pricing database update

Alert enterprise on pricing changes by posting a message to MQ using the WebSphere MQ Bridge for HTTP

Get latest currency exchange rate from the Web

Update a departmental table with currency rate to drive sales pricing
No WSDL and XSD – Fear Not! XPath Assist

Generates XPath from Feeds by point and click
Scenario 5: Federated Workflows

Use Case: On boarding

Light-weight REST-based workflows meet transactional workflows

WebSphere Process Server
BPM as a Service
Administer Processes on the Web

Start a new process instance (tagging)

Sharing of Processes (embedding)
BPM as a Service

Manage Tasks

Keep track of status of existing processes (Active, Completed, Canceled)

Manage tasks you need to process (My Tasks)
BPM as a Service
Monitor and Report

- Built-in monitoring

- Shows real time process information
  - Identify immediate problems
  - Drill down to detail information on a process instance

- Pre-built metrics and KPIs
  - Average processing time for a task
  - Activities backlog over time

Advanced dashboard and reporting via Cognos Now!
• Book a Tennis Court on Google Calendar
Behind the Scenes: BPM Zero and RESTful SOA

BPM Zero

Chat

Email

Activities

Store and Share

Feeds

Forms

Database

3rd Party REST Services (SCA Components)

Web

Business Rules

Changing the rules of business

www.devoxx.com
Behind the Scenes: A light-weight REST-based Workflow

- Light-weight workflow language and runtime to script together RESTful services
- Supports compatible subset of BPEL execution semantics
- Up and running in seconds
- Built-in extension mechanism
  - Service Providers can add their own extensions
- Built-in security support
  - Workflows can invoke a lot of services that have different security mechanisms – e.g. http basic access authentication, OAuth, OpenID, etc
  - Supports seamless redirection to service providers for authentication and back
- First released publicly in Project Zero, productized for WebSphere sMash
- Deployment is possible on multiple platforms - J2EE, WAS CE, Tomcat, WebSphere sMash
Collaborative Development of Assets

Activities are the individual steps in the execution of the REST process

BPM Zero provides a basic set, but users can add their own

Develop Extension Activities

Create Business Mashups using existing assets

Publish assets so that they can be discovered
How to add your assets to BPM Zero?  
*Step 1: Develop a Workflow Extension Activity*

Create a Workflow Extension Activity: 
1. XML Tag
2. Extension Code (Java, Groovy etc)

```xml
<twitter action="POST" name="Twitter"
    status="Hello Twitter">
    <security password="xxx" user="clau"/>
</twitter>
```

```java
public class Twitter extends AbstractExtensionImpl {
    public InvocationResult invoke(ExtensionActivityMap data) {
        ProcessContext ctxt = data.getProcessContext();
        String action = data.get("action");
        String status = data.get("status");

        if (action.equals("POST")) {
            // Build Twitter request using Twitter REST APIs
            URL = "http://twitter.com/statuses/update.xml?status=" + status;
            ISecurityHandler handler = SecurityHandlerFactory.create(...);
            InvocationResult result = handler.invoke(URL, data);
            return result;
        }
    }
}
```
Create an Editor Extension
1. Icon, Property Sheet
2. Validation rules
3. Code Generation Template

```
<paletteElement id="twitter" label="Twitter">
  <property name="name" label="Name" defaultValue="Twitter">
    <inputType>text</inputType>
  </property>
  <property name="action" label="Action" defaultValue="POST">
    <value>GET</value>
    <value>POST</value>
  </property>
  <property name="security_user" label="User ID">
    <inputType>nodesassist_input</inputType>
  </property>
  <property name="security_password" label="Password">
    <inputType>nodesassist_password</inputType>
  </property>
  <property name="status" label="Message">
    <inputType>nodesassist_textarea</inputType>
  </property>
</paletteElement>
```
ISV and Service Providers

*IBM Mashup Center: InfoSphere MashupHub*

Service Providers publish their REST services to the InfoSphere MashupHub

Create, store, transform, and remixing feeds to be utilized in mashup applications

Provides a central catalog for users to tag, rate, and share mashable assets

BPM Zero workflow discovers assets from the catalog when constructing the workflow
• Registering and Discovering REST based Services
Host in Bluehouse or other public Cloud

“Bluehouse”

“Bluehouse” Get Connected, Work Together

“Bluehouse” is an innovative and powerfully intuitive set of business applications designed to meet the essential needs of your business, no matter the size.

- Web Seminar Schedule and Files
- Watch the Demos

Store & Share
Upload and store your files with world-class security features. Use a web browser to access your files from anywhere. Share and collaborate with others on any type of file. Learn More about Store & Share

Meetings
Need a web meeting? How about a personalized, always ready-on-demand meeting room instead? Use it for customer presentations or collaboration sessions. Learn More about Meetings

Chat
Use instant messaging to chat with “Bluehouse” users. Learn More about Chat

Forms
Customize our templates to create your own surveys and business forms. When you’re ready to view results, you can easily create a Live Chart from the form data. Learn More about Forms

Contacts
Keep track of your clients and customers, important dates and events. Connect with others to share contact information. Learn More about Contacts

Activities
Break out of your inbox and into “Bluehouse” Activities to streamline your work with others. Learn More about Activities

Live Charts
Visualize your data through different types of charts, graphs, diagrams, and maps. Live Charts are visually compelling - so when you create one, you and your colleagues can easily explore the meaning within the data. Learn More about Live Charts

Business Mashups
Quickly create and manage business mashups using a combination of easy-to-create forms, Bluehouse services, and an extensible set of activities (including 3rd-party services).

Became an Early Adopter
Join our managed beta program to get a direct line to the “Bluehouse” Team. Learn More

We want to hear from you!
The “Bluehouse” Team wants your feedback. Please visit the user forum and tell us what you think. Learn More

Connect your business
The “Bluehouse” Business network is tuned to help you easily connect with your customers, partners and colleagues. Learn More

Find colleagues in the “Bluehouse” Network
Summary

Get ready for BPM as a Service in 3 simple steps

1. Use BPMN to describe your business processes
   - Standard, simple flow chart notation every business user can understand

2. REST-enabled your Assets
   - Make content simple and human readable (XML, ATOM, JSON)
   - Make them available via URL with HTTP actions (GET, POST, PUT, DELETE)

3. Leverage cost effective deployments and third party applications hosted on the Cloud
Today’s BPM Challenge…

*It is often difficult to generate enough ROI to cover the initial BPM platform investment, staff training etc.*

**BPM as a Service …**

*No software to install:*

Get started with little to no cost and demonstrate your **WOW** project

**Customers as Partners:**

*Suppliers, business partners, customers collaborate to create business value using the Web*

Rapidly refine those process steps that are critical based on real metrics
Thanks for your attention!

- IBM Mashup Center
- Lotus Mashup
- InfoSphere MashupHub
- WebSphere sMash
- Project Zero

- IBM BPM Suite
- WebSphere Business Modeler
- ILOG JRules

- IBM Cloud Services Initiative
- Bluehouse
- Lotus Connections
- Cognos Now!
- IBM WebSphere MQ Bridge for HTTP

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