Introduction to Workflow, BPM, Orchestration & JBoss jBPM

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Much Like A Treasure Hunt…

Agenda

- Types of Workflow
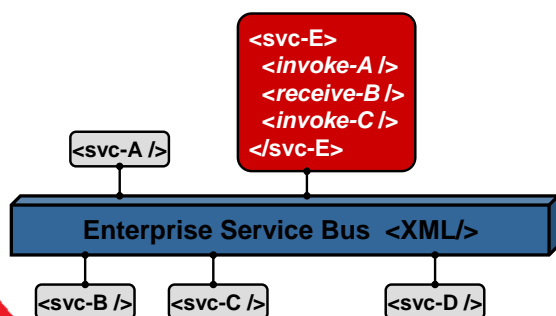- What is Workflow
- JBoss jBPM
- Embeddable BPM

Types Of Workfow

- The Ultimate Process Language does not exist
- Each environment needs its own process language
- BPEL is a well known brand name
  - ✓ **The** technology for service orchestration
  - ✓ No silver bullet

Service Orchestration
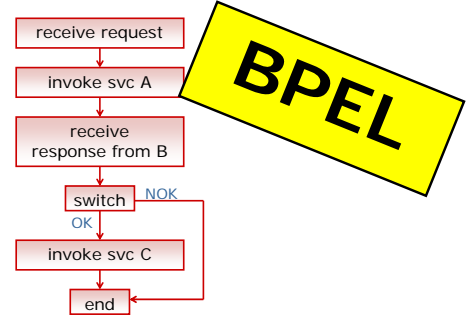
```
<svc-E>
 <invoke-A />
 <receive-B />
 <invoke-C />
</svc-E>
```

`<svc-A />`

Enterprise Service Bus <XML/>

`<svc-B />`   `<svc-C />`   `<svc-D />`

Service Orchestration

receive request
↓
invoke svc A
↓
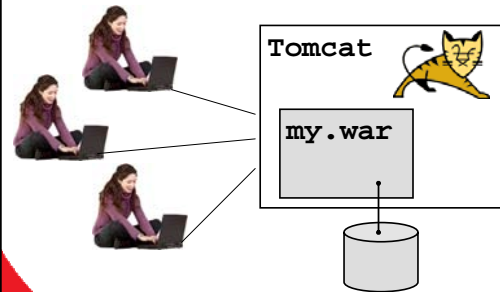receive response from B
↓
switch   NOK
OK
↓
invoke svc C
↓
end

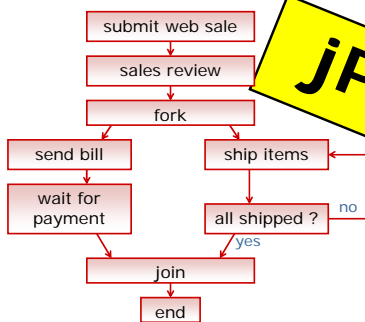**BPEL**

Service Orchestration

- ESB / XML environment
- WSDL interfaces
- Invoke and public WSDL Services
- XML snippets as process variables

BPEL

Human Task Workflow Webapp

Tomcat

my.war

Human Task Workflow Webapp

submit web sale
sales review
fork
send bill
ship items
wait for payment
all shipped ? no
yes
join
end

jPDL

Human Task Workflow Webapp

- Plain Java environment
- Java API
- Java process variables
- Including custom Java code in process
- Task management with Java API

jPDL

Other Types of Workflow

- Pageflow
  - ✓ Navigation between pages visualized as graph
  - ✓ E.g. JBoss SEAM
- Synchronization
  - ✓ MOM based
    - Covered by jPDL
  - ✓ Concurrent programming

Agenda

- Types of Workflow
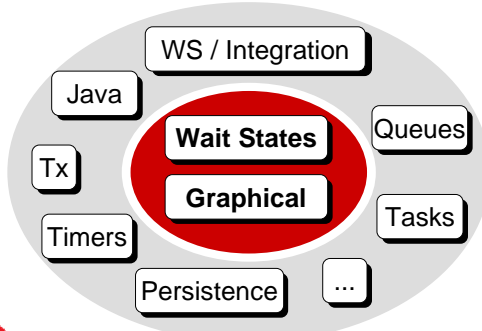- What is Workflow
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What is Workflow

- Many process languages
- Many names
  - ✓ Workflow
  - ✓ Business Process Management
  - ✓ Orchestration
- Seems confusing but…
  it's all the same : -)

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Workflow Features

- WS / Integration
- Java
- **Wait States**
- Queues
- Tx
- **Graphical**
- Tasks
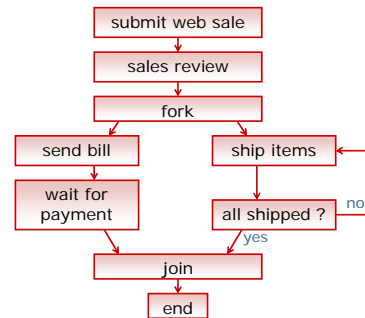- Timers
- Persistence
- …

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Wait States

- Long running executions
- E.g. Insurance claim
  - ✓ Users submits claim
  - ✓ Insurer requests expertise
  - ✓ Expert verifies damage
  - ✓ User gets paid
  - ✓ Case closed
- Can't write this directly in Java
  - ✓ Java Thread can wait persistent
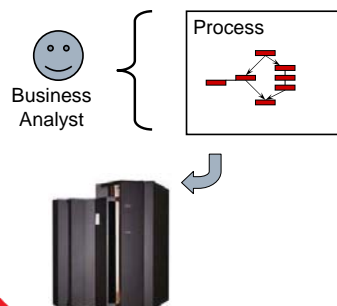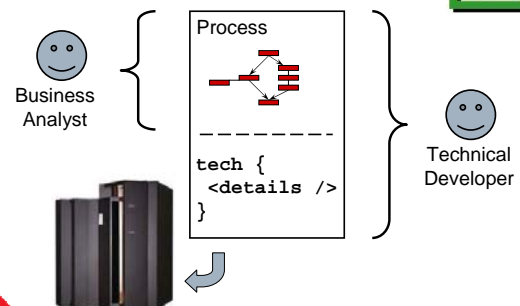 - ✓ Binding request/responses is tedious

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Graphical

submit web sale → sales review → fork → send bill / ship items → wait for payment / all shipped ? (no / yes) → join → end

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Workflow Traditional View

Business Analyst — Process

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Workflow Common Language

Business Analyst — Process

```
tech {
<details />
}
```

Technical Developer

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Agenda

- Types of Workflow
- What is Workflow
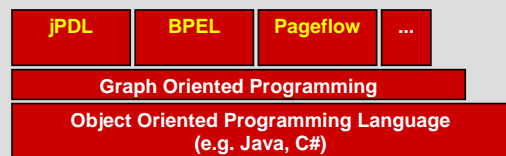- JBoss jBPM
- Embeddable BPM

Graph Oriented Programming

- Foundation
  - ✓ For implementing process languages
  - ✓ On top of Object Oriented Programming
- ➜ Like the relational model for DB's
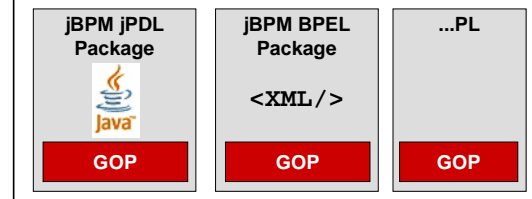- ➜ Java version of
  Windows Workflow Foundation
- ➜ See http://jbpm.org/gop

JBoss jBPM Technical View

Graph Based Execution Languages

| jPDL | BPEL | Pageflow | ... |

Graph Oriented Programming

Object Oriented Programming Language
(e.g. Java, C#)

JBoss jBPM Product View

JBoss jBPM Product

jBPM jPDL Package	jBPM BPEL Package	...PL
Java	<XML/>	
GOP	GOP	GOP

Agenda

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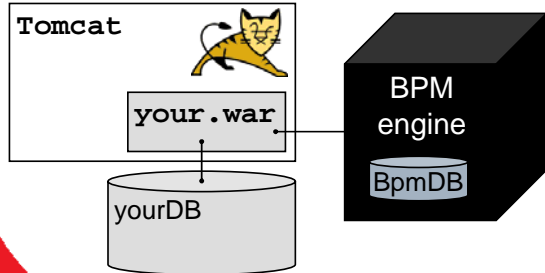- JBoss jBPM
- Embeddable BPM

BPM Suites

- Often monolithic systems
- Software development without coding
- Process centric
- Good for certain applications
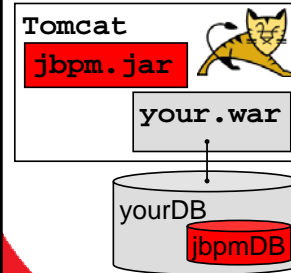- But a big leap from Java development

Embeddable BPM

- Traditional BPM System

```
Tomcat
  your.war ──────── BPM
                    engine
  yourDB            BpmDB
```

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Embeddable BPM

- White box advantages

```
Tomcat
jbpm.jar
  your.war
  yourDB
  jbpmDB
```
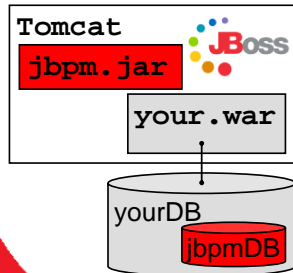
- ✓ TDD / short round trip
- ✓ Integrates into *your* architecture
  - • Database
  - • Configuration
  - • Transactions
- ✓ Easier to deploy
- ✓ Easier to manage

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Embeddable BPM

- White box pluggability

```
Tomcat        JBoss
jbpm.jar
  your.war
  yourDB
  jbpmDB
```

- ✓ Deploying on app server enables J2EE goodies
  - • JTA
  - • MOM integration (JMS/MDB)
  - • Security
- ✓ Configure services and bind to J2EE

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Embeddable BPM

- Easy switching between
  - ✓ Standard Java
  - ✓ Enterprise Java

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Conclusion

- JBoss has a multi process language strategy
  - ✓ Different environments
  - ✓ Different languages
- Common foundation : Graph Oriented Programming
  - ✓ Better deployment integration
  - ✓ Better tools integration
  - ✓ Mindshare

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Conclusion

- Different environments Different languages
- Monolithic systems not embeddable
- Workflow in Java
  - ➔ **jPDL**
- Service Orchestration
  - ➔ **BPEL**
- In any case
  - ➔ **http://jbpm.org**

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Questions ?

- @see JBoss jBPM
  - ✓ Practical demos
  - ✓ jPDL & BPEL
  - ✓ 4:30 pm
  - ✓ Rio Pavilion 1
- Many other
  jBPM presentations
- http://jbpm.org

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