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Execute your Processes

with Eclipse JWT
Workflow and Business Process Management

Current situation in BPM:
Workflow and Business Process Management

Current situation in BPM:

- Many graphical modeling languages
  - BPMN, BPDM
  - EPCs
  - UML Activity diagrams
  - ...

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Current situation in BPM:

- Many graphical modeling languages
  - BPMN, BPDM
  - EPCs
  - UML Activity diagrams
  - ...

- Many process languages and technical formats
  - XPDL
  - jPDL
  - BPEL
  - ...

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Current situation in BPM (2):

- Even more process engine implementations
Workflow and Business Process Management

Current situation in BPM (2):

- Even more process engine implementations

and a lot of others...

compare e.g. http://java-source.net/open-source/workflow-engines

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Current situation in BPM (3):

- Many tools for modeling, but most of them are not compatible

and a lot of others...

compare e.g. http://www.bpmn.org/BPMN_Supporters.htm

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Java Workflow Tooling

Goals of JWT:

- Support for workflow and business process modeling, deployment, execution and monitoring inside Eclipse
- Provide a complete, flexible, interoperable and usable BPM toolkit
Java Workflow Tooling

Goals of JWT (2):

- Set of generic and extensible plugins and APIs
- Extensions allowing support for specific business representations, process language formats, process engines, service platforms, etc.
- Targeting and supporting SOA in close collaboration with the Eclipse STP project
Components of JWT
JWT Metamodel
JWT Metamodel (2)
Workflow Editor (WE)

- Extension points overview
Demo Part 1: From BPMN to JWT

- Demo
  - Start with a model in BPMN
  - Transform it into JWT
  - Add technical details
Views in the Workflow Editor

- Based on the „MDSD light“ - principle:

```
MDSD

CIM

IT-Expert

PIM

Business Expert

PSM

IT System Code

Code
```

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Views in the Workflow Editor

- Based on the „MDSD light“ - principle:

MDSD

- Business Expert
- IT-Expert
- IT System Code

MDSD light

- business view
- domain-specific model (DSM)
- IT view
- XML-Code

transformation / generation

simulation
Aspect-oriented extensions of the Workflow Editor

- Why extending the editor via aspects?
  - Provide additional nodes that don’t exist in the original metamodel
  - Call vendor specific custom actions for specific model elements
  - Have additional properties on already existing metamodel elements
Aspect-oriented extensions of the Workflow Editor

- Concrete example: views
- Not existing modeling elements are required
- e.g. EPC Event
Aspect-oriented extensions of the Workflow Editor

- Why not using EMF annotations?
  - EMF annotations are not typed (risks of conflicts)
  - Adding custom information to an element in EMF means subclassing it
  - Several such custom extensions (e.g. from different vendors) would mean to create a new node type that extends all of them
  - Neither flexible nor open to the end user
Aspect-oriented extensions of the Workflow Editor

- Any EMF model can have a configuration (ConfModel) including Profiles (features)
- Each Profile specifies its Aspects (typed)
- Instantiated on elements of the decorated model
Using templates in the Workflow Editor

- Export of often required model elements
  - Packages, Applications, Data, Roles, etc.
- Easy reuse in other process models and workflows
JWT Transformations

- Import (already seen)
- Export:
  - HTML documentation of the modeled processes
  - JWT back to BPMN
  - JWT to STP-IM
    - Both using the ATLAS Transformation Language (ATL)
  - JWT to XPDL (e.g. packed in a Bonita Archive)
  - JWT to jPDL
  - JWT to BPEL
  ...
JWT Transformations

- JWT to BPEL: Workflow Codegeneration

![Diagram of JWT Transformations](http://sf.net/projects/wf-codegen)
Demo Part 2: Views & From JWT to XPDL/BAR

- **Demo**
  - Show different views of process: UML Activity diagram as well as Event-driven Process Chains (EPCs)
  - Export process to Bonita Archive (BAR file with XPDL included)
JWT Runtime

- Task Engine Framework
  - API to handle automated tasks at runtime with the same paradigm as the one used at model-time
    - Applications as black boxes
    - Independent from engine
    - Using data mapping
  - Builds a bridge between process engines and human interaction on the one side with automated task implementations on the other
JWT Runtime

- Task Engine Framework
JWT Integration: AgilPro

- AgilPro LiMo for modeling business processes and workflows
  - based on JWT WE, includes JWT Transformations
  - includes Wf-Codegen and other additional plugins
- AgilPro Simulator
  - preview process without process engine
- AgilPro integration framework
  - layer on top of jBPM
  - execute web services in BPEL

http://sf.net/projects/agilpro
Demo Part 3: JWT Integration with AgilPro

- Demo
  - Enter book details, search for book at Amazon
  - Preview in the AgilPro Simulator
JWT Integration: Scarbo

**What is Scarbo (http://scarbo.ow2.org)?**

- An open, SOA ready, SCA powered BPM solution built on OW2 and Eclipse
  - Implements the JWT Task Engine Framework on top of Nova Bonita 4 workflow engine

**What can Scarbo do for you?**

- Builds a bridge between workflows and web services
- Gives the ability to develop and execute processes that
  - Call web services or SCA defined services (using OW2 Frascati)
  - Run Groovy scripts
  - Send e-mails

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JWT Integration: Scarbo (2)

Eclipse JWT + Scarbo plugins

Eclipse STP SCA Editor

BPM Compatibility

Any SOA

Workflow Engine

Scarbo runtime

Service Platform

Nová Bonita

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Demo Part 4: Execute the Process

- Demo
  - Deploy process on Nova Bonita, execute it
  - Show final results on Amazon site
Summary and Conclusions

- JWT provides an extensible framework for workflows, business processes and services
- Contains already many plugins for workflow modeling and transformations
- Still work to do for deployment, execution and monitoring support directly in Eclipse
- JWT will be shipped together with Galileo in June
Thanks for your attention!

Any questions???

- website: http://www.eclipse.org/jwt
- newsgroup: eclipse.technology.jwt
- email: jwt-dev@eclipse.org
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