eBPM project

Introduction

The **eBPM** is an open source project proposed under the Eclipse SOA Tools Platform, in accordance with the [Eclipse Development Process](#). Everyone is invited to join the project and to provide their feedback using the http://www.eclipse.org/newsportal/thread.php?group=eclipse.ebpm newsgroup.

Overview

At present, the OSGi technology appears to be the best answer to the demand of stable, modular and easily extensible solutions according to the SOA guidelines. On the other hand, OSGi really misses a central concept of a BPM platform that enables to describe the integration process in terms of OSGi services orchestration.

The **eBPM** aims at the realization of a complete BPM solution for OSGi. The project will also provide UI and runtime support, to be able to deploy and manage OSGi services, in a declarative way, leveraging the capabilities of OSGi declarative services.

In **eBPM** will propose two different approaches to realize a BPM Solution for OSGi:

- Providing a BPM Gateway Bundle into the OSGi container which is able to realize the orchestration of other services.

- Embedding the OSGi runtime in an external BPM Engine and extending it so as to be able to use the services provided by the container.

The proposal also includes a console (eclipse view/perspective) for management and monitoring activities.

The complete list of proposed components is available in the proposed components paragraph.

Project Principles

The key principles of the project are:
- **Leverage Eclipse Ecosystem**: the project aims to closely work with other Eclipse project areas such as Eclipse SOA Tools Platform, Eclipse RT, Swordfish and Eclipse modelling tools.
- **Vendor Neutral**: the project promotes open source runtime technology, based on Equinox, in order to create a comprehensive BPM solution
- **Modularity**: the project architecture is based on a modular solution, so that users can always select and use the components that more suit their needs.

Project Scope

The eBPM project will focus on providing both runtime, and support tools to realize a complete BPM solution based on OSGi

For the runtime part the eBPM project will provide:

- A core framework (eBPM Core framework) to develop, configure and manage OSGi services based on messaging paradigm. The core framework will be built on top of Equinox runtime project.
- A set of standard connectivity (SOAP, JMS etc..) and business services built on top of eBPM core framework. For connectivity service one of the project goals is to collaborate with ECF runtime project and with Swordfish based connectors.
- An OSGi bundle (BPMGateway) able to orchestrate OSGi services of the core framework.
- Extensions towards the Apache ODE engine so as to be able to embed Equinox and eBPM core services in the BPEL engine.
- A metadata model to have a persistent model for eBPM projects.

The project will provide support and deployment tools for the configuration of services for the eBPM core framework and a monitoring ui perspective to manage runtime information, so that the proposal does not aim to replace or substitute existing OSGi development tools (PDE).

The proposal does not aim at providing process development tools and SOA metamodel, but it will use and extend existing Eclipse projects like Eclipse BPMN Modeler, Eclipse BPEL Editor and STP intermediate model (now Mangrove project). eBPM will focus on code generation capabilities.
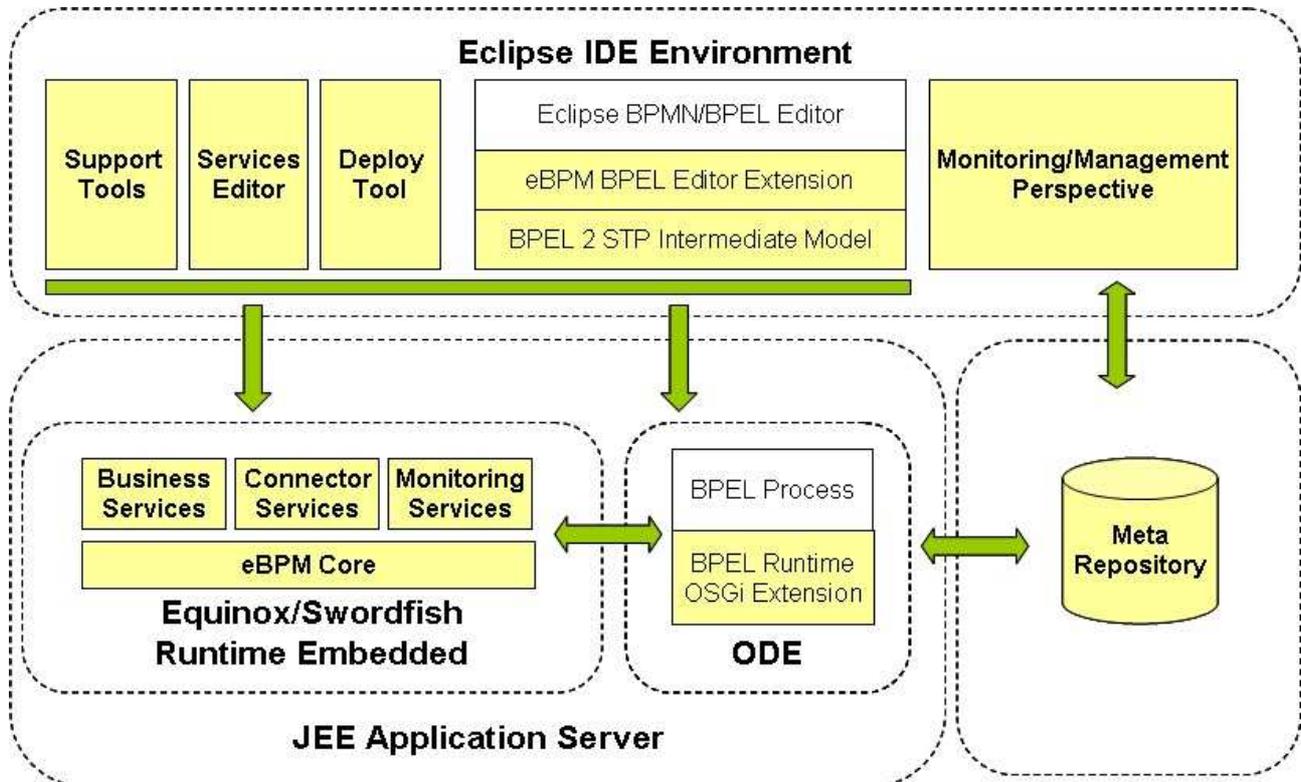
The following schemes illustrate the proposed architectural runtime services that will be implemented.

Proposed Components

The general architecture of eBPM will be the following one:
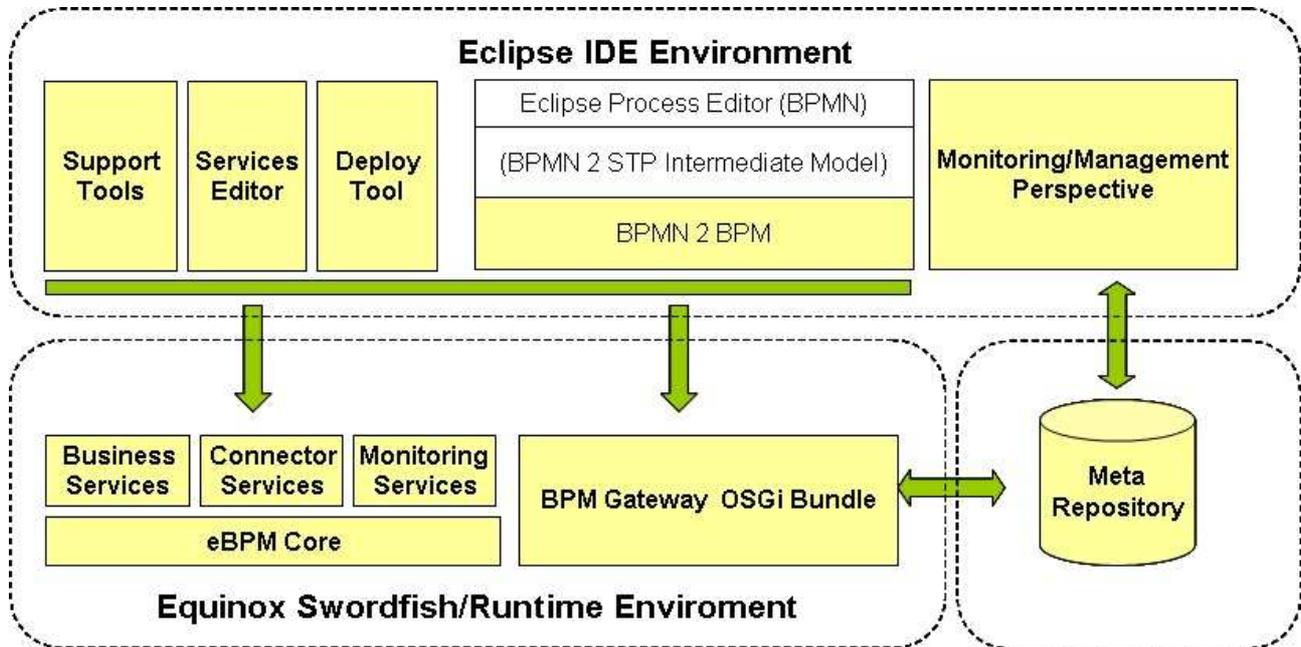
When we need an external BPM Engine like BPEL, the runtime part becomes:

OSGi Bundles:

- *eBPM Core Framework:* Set of bundles which leverage the capabilities of OSGi Declarative Services in order to provide a common way to define/develop OSGi services.
  eBPM core framework will provide a way to realize OSGi Services based on the messaging paradigm that use the OSGi Event Admin Service to communicate with each others.

- *eBPM Deployment Service:* Bundle that will provide an OSGi Service, that will look for service configuration file and will publish OSGi services using facilities offered by DS and DS Component Factories.

- *BPM Gateway API*: The bundle defining the interface for BPM Gateway implementations.

- *BPM Gateway Process Engine:* The bundle containing an implementation of the API, based on an open source process engine.

- *Standard Connectors and Services*. Bundles that provide common connectivity and business services (SOAP, JMS, File System, FTP, TCP with pluggable applicative protocol implementations, Quartz, XSLT Transformation service, Groovy, JDBC, XSD Validation)

- *eBPM Monitoring Services:* The set of bundle that will leverage information from runtime and store into a relational database.

Metadata Model

The relational model used by eBPM to store monitoring information. Basically this will be based on the STP Intermediate Model.

Eclipse IDE Plugins (Extensions to Eclipse IDE)

- *eBPM Project Wizard Tool*: Eclipse Plugin to create an eBPM project.

- *Service Editor:* visual tool for the configuration of eBPM service descriptor that will be used by eBPM Core Service Framework to register OSGi services into the runtime. This will not replace PDE tool, as it's intended as a tool to create eBPM service descriptor to be used by eBPM Deployment Service.

- *BPMN to BPM Gateway Process Engine Bundle*: Based on Eclipse STP IM (Mangrove) it produces process definitions to be used by the BPM Gateway default implementation (jbpm) bundle.

- *BPMN to BPEL*: Based on Eclipse STP IM (Mangrove), it produces BPEL processes using the models realized by means of Eclipse BPMN Designer. The processes are then completed through the BPEL Designer.

- *Deploy Tools:* Utility Tools integrated in Eclipse, which allow to deploy an eBPM project to the runtimes.

- *Eclipse BPMN Editor Extension:* Extension to the Eclipse BPMN editor to support the drag and drop of OSGi service definitions into the diagram.

- *Eclipse BPEL Editor Extension:* Extension to the Eclipse BPEL editor to support the drag and drop of OSGi service definitions into BPEL diagram.

- *Eclipse eBPM Support Tools*: Some support plugins (menu contributions, preference page), to help users work with eBPM.

- *Monitor and Management Perspective/View*: Eclipse plugins to provide a view with the list of processes, process instances and status information

Extension to BPEL Runtime (eBPM is used in an OSGi runtime embedded in BPEL runtime)

- *OSGi Extension for the BPEL Runtime*: extensions enabling the BPEL runtime to orchestrate OSGi services. It will be initially released for Apache ODE.

Relation with other Eclipse Projects

- Eclipse STP IM
- Eclipse BPEL Designer
- Eclipse BPMN Modeler
- Eclipse Equinox, RT
- Eclipse Swordfish
- Eclipse ECF
- Eclipse Link
- Eclipse Gemini

Organization

Everyone is invited to express their concern or opinion about the above-proposed **eBPM** and to offer their support to its development using the newsgroup.

Committers

- Andrea Zoppello, Engineering
- Gianfranco Boccalon, Engineering
- Luca Rossato, Engineering
- Antonietta Miele, Engineering
- Luca Barozzi, Engineering
- Daniela Butano, Independent

Interested parties

The following companies have shown interest in this project. Key contacts listed.

- Alain Boulze, INRIA
- Adrian Mos, INRIA
- Oliver Wolf, SOPERA
- Ricco Deutscher, SOPERA

Tentative Plan

- 2010/05 – when the Release Candidate of eBPM will be released
- 2010/07 – when the eBPM 1.0 will be released