

## Metadata Production Management Framework

### Overview

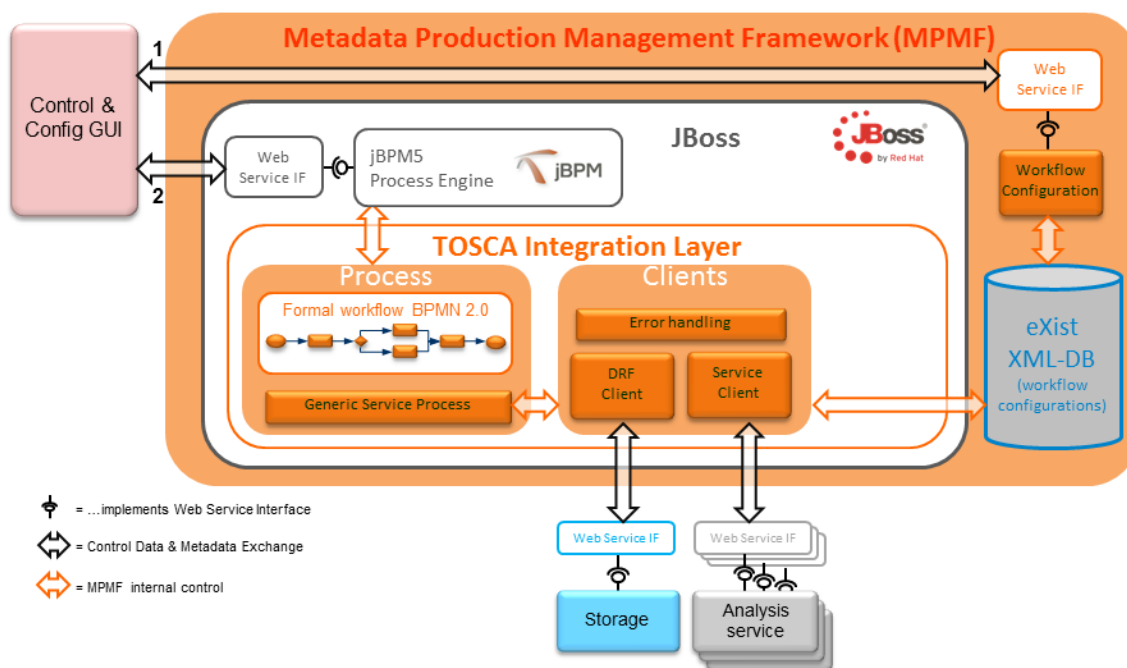
The Metadata Production Management Framework (MPMF) generally speaking is a framework for service orchestration and execution of media analysis processes, where the overall system can be based on distributed components, interconnected via web service interfaces. The framework takes an appropriate, formal business process model (BPMN 2.0) as basis for the orchestration within the overall system, and – with help of an additional configuration information – implements the process, allowing the execution of AV content analysis jobs and monitoring its progress.

Within a distributed media processing system, the MPMF fulfils the role of a mediator, interconnecting, controlling and orchestrating all other components via web service interfaces and supporting the communication and exchange of control- and metadata between them.

The MPMF is based on the Red Hat JBoss® Enterprise Application Platform, and contains a multitude of TOSCA-MP specific solutions for a flexible workflow configuration, pre-processing steps (before the actual invocation of analysis services), process logic and an extensive error handling and logging.

### In depth description

The figure below shows the MPMF architecture in more detail (orange box), putting it into context with the administration application (Control & Config GUI), the analysis services and the storage in an overall system.



The Red Hat JBoss® Enterprise Application Platform provides a generic process engine (jBPM<sup>1</sup>) which can be accessed for process control and monitoring through a standard web service interface. jBPM is a Business Process Management (BPM) suite based on a light-weight, extensible workflow engine written in Java that allows execution of business processes conforming to the BPMN 2.0 specification. Hence, all additional TOSCA-specific MPMF components have been developed in Java (JDK 6) as well.

Along with the administration application (depicted as Control & Config GUI in the figure above) the MPMF provides two main functionalities to an administrator / end user:

1. Configuration of a workflow (Control & Config GUI – Workflow Configuration) for flexible adjustment of all process and service parameters;

<sup>1</sup> <http://www.jboss.org/jbpm>

## 2. Process execution and monitoring (Control & Config GUI – jBPM5 Process Engine – TOSCA Integration Layer).

The administration application gains access to the workflow configuration via a web service that was implemented by IRT. All workflow configurations are contained in an eXist XML database for reading, editing and saving.

Workflows (i.e. processes) can be executed via a JBoss out-of-the-box web service, giving access to the jBPM5 process engine as well as to a management console supporting process instance management, task lists and task form management, and reporting.

Within the TOSCA Integration Layer, the following components have been realized:

- An adapted formal BPMN 2.0 representation of the appropriate process to be executed by the MPMF;
- A Generic Service Process, for each analysis service handling the sequence of clients to be called;
- Clients handling the communication with the storage and the analysis services;
- For each integrated service an additional software module has been implemented to handle the service specific communication (not shown in the figure above).

### ***Potential fields of Application***

The MPMF, or parts of it, can be applied in all media production workflows, in which feature analysis services are running and need to be orchestrated in a certain way (e.g. based on a formalised workflow). The process part can be potentially used in any other process engine that supports the execution of BPMN 2.0 representations. The client components of the analysis service can be reused in any Java based run time environment.

### ***Possibilities for exploitation***

The MPMF is available as a working prototype. It will be used as a demonstration system to support IRT's consultancy in the field of SOA systems.

MPMF components may be licensed, where license agreements are to be defined on a bilateral basis. Adaptation of the software developments will be required to integrate the appropriate components in specific production workflows.

Further development of the framework is in planning; the implementation principles and / or software components can be used for future research and development, e.g. within the scope of future collaborative projects.

### ***Further Information***

Further information is available in TOSCA-MP Deliverable D6.6<sup>2</sup> "Final Report on Integration", section 5.4.

### ***Contact Person***

Ronald Mies  
Institut für Rundfunktechnik  
Floriansmühlstrasse 60  
80939 München  
Germany  
[mies@irt.de](mailto:mies@irt.de)

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<sup>2</sup> [http://tosca-mp.eu/wp-content/uploads/2014/04/TOSCAMP-D6.6-IRT\\_FinalReportOnIntegration\\_v10\\_Public.pdf](http://tosca-mp.eu/wp-content/uploads/2014/04/TOSCAMP-D6.6-IRT_FinalReportOnIntegration_v10_Public.pdf)