

# jBPM Replacement

Marvin Wolfthal

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# Goal

- Propose a lightweight replacement for jBPM

# Approach

- Simple Business Process Management XML Schema
  - Process
  - Task
- Java reflection-based execution of Task methods
  - Branching (gateway) can be handled by method defining next method to execute based on current execution result

# EnrollmentProcess.xsd

```
<?xml version="1.0" encoding="UTF-8"?>
<xmlns:enrProcess="http://gov.medicaid.enrollment.process" elementFormDefault="qualified">
  <element name="EnrollmentProcess" type="enrProcess:EnrollmentProcess"/>
  <simpleType name="ResultStatus" final="restriction">
    <restriction base="NMToken">
      <enumeration value="Failure"/>
      <enumeration value="Success"/>
      <enumeration value="Unknown"/>
    </restriction>
  </simpleType>
  <complexType name="Result">
    <sequence>
      <element name="status" type="enrProcess:ResultStatus"/>
      <sequence>
        <element name="messages" minOccurs="0" maxOccurs="unbounded"/>
      </sequence>
    </sequence>
  </complexType>
  <complexType name="TaskResult">
    <complexContent>
      <extension base="enrProcess:Result"/>
    </complexContent>
  </complexType>
  <complexType name="Task">
    <sequence>
      <element name="startMethod" type="string"/>
      <element name="nextMethod" type="string" nillable="true"/>
      <element name="result" type="enrProcess:TaskResult"/>
    </sequence>
    <attribute name="name" type="string" use="required"/>
  </complexType>
  <complexType name="EnrollmentProcessResult">
    <complexContent>
      <extension base="enrProcess:Result"/>
    </complexContent>
  </complexType>
  <complexType name="EnrollmentProcess">
    <sequence>
      <element name="processId" type="int"/>
      <element name="task" type="enrProcess:Task"/>
      <element name="enrollmentData" type="anyType" minOccurs="0"/>
      <element name="result" type="enrProcess:EnrollmentProcessResult"/>
    </sequence>
  </complexType>
  <complexType name="Enrollment">
    <sequence>
      <element name="providerName" type="string"/>
    </sequence>
  </complexType>
</schema>
```

# Sample Process Definition

```
<?xml version="1.0" encoding="UTF-8" ?>
<psm:EnrollmentProcess
  xmlns:xs="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:psm="http://gov.medicaid.enrollment.process"
  xs:schemaLocation="http://gov.medicaid.enrollment.process EnrollmentProcess.xsd">
  <psm:result>
    <psm:status>Unknown</psm:status>
  </psm:result>
  <psm:task name="Enroll">
    <psm:startMethod>enroll</psm:startMethod>
    <psm:result>
      <psm:status>Unknown</psm:status>
    </psm:result>
  </psm:task>
</psm:EnrollmentProcess>
```

# Execution

- Unmarshal process definition to **EnrollmentProcess** instance
- **EnrollmentProcessManager**
  - .executeProcess( EnrollmentProcess )**
    - **executeTask( Task )**
      - invoke **Task.startMethod**
        - **Status.FAILURE** aborts task
        - Loop on
          - » **Task.nextMethod**
        - until **FAILURE** or null **Task.nextMethod**

# Sample Run

```
Jul 05, 2018 1:26:41 AM gov.medicaid.processmanager.EnrollmentProcessManager executeProcess
FINE: got EnrollmentProcess, processId = 101
Jul 05, 2018 1:26:41 AM gov.medicaid.processmanager.EnrollmentProcessManager executeProcess
FINE: got task Enroll
Jul 05, 2018 1:26:41 AM gov.medicaid.processmanager.EnrollmentProcessManager executeProcess
FINE: calling executeTask
Jul 05, 2018 1:26:41 AM gov.medicaid.processmanager.EnrollmentProcessManager executeTask
FINE: executing Task Enroll, startMethod = enroll
Jul 05, 2018 1:26:41 AM gov.medicaid.processmanager.EnrollmentProcessExecutor enroll
FINE: got Enrollment, ProviderName = OTS
Jul 05, 2018 1:26:41 AM gov.medicaid.processmanager.EnrollmentProcessManager executeTask
FINE: startMethod result status is SUCCESS
Jul 05, 2018 1:26:41 AM gov.medicaid.processmanager.EnrollmentProcessManager executeTask
FINE: executing Task Enroll, nextMethod = persist
Jul 05, 2018 1:26:41 AM gov.medicaid.processmanager.EnrollmentProcessManager executeTask
FINE: nextMethod result status is SUCCESS
Jul 05, 2018 1:26:41 AM gov.medicaid.processmanager.EnrollmentProcessManager executeTask
FINE: no more methods in task
Jul 05, 2018 1:26:41 AM gov.medicaid.processmanager.EnrollmentProcessManager executeTask
FINE: task completed with status SUCCESS
Jul 05, 2018 1:26:41 AM gov.medicaid.processmanager.EnrollmentProcessManager executeProcess
FINE: EnrollmentProcess status is SUCCESS
```