Processing framework & chaining needs and work Plan

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Themes

- Application Management
- Workflow Definition
- Application execution
Application management

- Assumption: An application is packaged in an Application Deployment Package (ADP) which contains:
  - The Application (e.g. container, executable)
  - Deployment information (e.g. CPU, RAM, OS requirements)
  - Execution information (e.g. execution command, input/output data definition)

- Exploitation Platform needs:
  - Application registration within platform registry
  - Application compatibility with platform federation verification
  - Application management (update, remove, ACL setting) by application responsible
  - ADP Export ADP within the federation
  - Application development and packaging on the platform

- Standards/Technical solutions: OASIS CAMP, Atomic App
Workflow definition

- Definition: A Workflow is an Application resulting by linking together other applications registered in the platform.

- Exploitation platform needs:
  - Relate the input of an Application with the output of another in order to perform chaining, fork and join of applications
  - Check input/output compatibility based on data types semantic
  - Define conditions on branch execution (e.g. product availability)
  - Workflow description in a standard format
  - Workflow registration within platform registry
  - Application management (update, remove, ACL setting) by workflow responsible

- Standards: WfMC XPDL, OASIS BPEL
Application execution

• Exploitation platform needs:
  • Authorized users Application launch and monitor
  • Event based Application launch
  • Batch and interactive application support
  • Different frameworks support (e.g. stand-alone IPF, Hadoop, HPC)
  • Delegated processing (Launch an application on a federated platform)
  • Workflow execution support
  • Massive input processing support
  • Information and estimates on application resource usage provision
  • Most appropriate execution environment selection (e.g. based on data proximity, performances)
  • Interaction with ICT layer to deploy/release application and needed resources
  • Interaction with Data Access layer for data discovery and access resolution

• Standards: OGC WPS, OASIS TOSCA, OASIS CAMP
## Work Plan

<table>
<thead>
<tr>
<th>Priority</th>
<th>Application management</th>
<th>Workflow definition</th>
<th>Application execution</th>
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| High     | • ADP definition for basic application  
           • Define ADP management API | • Basic Workflow definition (chaining, fork, product type based compatibility) | • User launched application  
           • Batch & interactive application  
           • Workflow execution  
           • Consumption report  
           • Delegated processing |
| Medium   | • ADP and API enhancement for parallelizable application | • Conditional branches and join support | • Event based execution  
           • Consumption estimation  
           • Execution environment selection  
           • Massive input processing |
| Low      | • ADP and API enhancement for specific framework  
           • On-platform development | • Data semantic based compatibility | • Support for different frameworks |