OGF20
Levels of the Grid Workflow Interoperability
Workflow Management Working Group

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9th May, 2007
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About the WfMC.org

• founded in 1993
• has over 300 member organization
  • IBM, Sun, Oracle, Nec, Adobe, etc
• member of OASIS and OMG
• worked out
  • the XPDL and Wf-XML/ASAP standards
  • workflow design patterns (also in UML and petri-net model) and Terminology & glossary
• consist of different work group
  • WG4 – Workflow Interoperability
Workflow interoperability levels

1. No interoperability (this is the actual state in the Grid)

2. Coexistence
   - no standard approach to the interoperability
   - workflow products sharing the same run-time environment
   - active human participant needed

   ➔ In the term of Grid, it could be possibly inside one specific middleware!
3. Using gateways
   a) Unique gateways
      - it is responsible for routing of operation between workflow engines
      - it performs translation and delivery of
        - workflow relevant data
        - workflow application data

   b) Common Gateway API
      - In the term of Grid, an Unique gateway could be a (Grid) Service
Workflow interoperability levels

4. API based interoperability

a) Limited Common API subset

b) Complete workflow API
5. Shared Definition Formats

- having a shared format for process definitions, user access rights and the maintenance of workflow system resources

- WfMC provided the XPDL version 2.0 to support this level of interoperability!

- WFM-RG should adopt the XPDL (in the term of Grid) to create the standardised Grid Workflow description
Workflow interoperability levels

6. Protocol Compatibility
   ➔ assumes, that all API client/server communication are standardized, including
      ➔ the transmission of definitions,
      ➔ workflow transactions,
      ➔ recovery

   ➔ WfMC Wf-XML/ASAP protocol standard provide to support this level of interoperability
Models of Interoperability

• The WfMC – Workflow Interoperability Abstract Specification draft defines 4 models:
  1. Chained processes
  2. Nested Synchronous sub-process
  3. Event synchronized sub-process
  4. Nested sub-process (Polling/Deferred Synchronous)
Models of interoperability - Nested synchronous sub-process

- a process instance in engine A causes the creation and enactment of a sub-process instance on engine B
- the invoking workflow engine remains active, until the sub-process reaches some form of termination -> allows forward enactment of activity within the process instance
- synchronization should achieved by notification
Grid Workflow Permeability concept

• Implementing the level 3 of interoperability (Unique Gateway) and using the nested synchronous sub-process model

• we can create this gateway as a (Grid) Service, that is responsible for
  • the routing of operation
  • the translation and delivery of workflow relevant and application data(s)

• this solution could be created fastly and easily
Grid Workflow Permeability Concept

• When standardised Workflow definition format published by the WFM-RG => the Permeability concept will be dropped out?
  • in my opinion, years would be passed, until every Workflow Engine will adopt it
  • it could be a temporally solution, if we use this Permeability (Grid) Service to converts non-standard workflow descriptions into standardised form
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