A flexible architecture to build workflows using aspect-oriented concepts

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Contents

• Overview of the paper
  - Workflow domains
  - Materialization as executable models
  - Weaving strategy

• Focus on three points
  - Independence of concerns
  - Granularity of coordination
  - Generalization of the ideas presented
Workflow Domains

- Modularization advantages
- Several specific languages
Executable Models

- Synchronized executable models
  - One per domain
Executable Models

- Based on 'open objects'
  - Use synchronized state machines

- Coordination
  - Event passing and method calling
Weaving

• Coordinated execution of the models
  - Same mechanisms than within a model (event passing and method calling)
  - Instrumentation using actions

• Language for describing relations between models
Weaving

process: (Activity) A | activation
StartChecking ( time: (TimeRestriction) TR1, startCheck( ) )
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Independence of Domains

• Independent languages
  - Each one has its own structure

• Independent execution
  - Running in separate engines
  - Can be dynamically added or removed
  - Process is central but the other domains can be removed

• Independent evolution

• Benefits for
  - Maintenance, Reuse
Granularity of Coordination

• Available coordination hooks
  - Transitions and generated events
  - Closely related to elements' states

• Complexity

• The structure of a state machine should be an adequate abstraction
  - Simplifies the synchronization
Generalization of the Ideas

• Application to other contexts, not only workflows

• Executable Models
  - Some code is required
  - There is no transformation

• Aspects
  - Stateful
  - Dynamic
    • Weak coupling
Future Work

• Improve tools
  - Application to BPMN

• Experimentation with other domains

• Improve the weaving language
  - Better management of instances

• Formalization
Thank you!

Questions?