PauWare: a tool for executing UML state machines

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Introduction

- Clear separation between the model and business methods
  - Changing the behavior consists in only modifying the executable model (ex: changing a transition between two states)
  - If the business code contains some behavior, changing the behavior requires also to mofify the business code
- PauWare
  - But as seen: problem to weave business code with a behavorial model
  - A (radical) solution
    - Do not define your model under the form of a .xmi or .uml file but program it directly!
    - PauWare enables to program UML state machines in plain Java
    - The easiest way to associate the "model" with business methods

PauWare: UML state machine execution

- Java API and execution engine
  - Open source software (LGPL v3) – Java SE/EE and Java ME versions
- API for defining a state machine in plain Java
  - Implements the complete semantics of UML 2 state machines
  - States can be associated with business operations (do, entry, exit)
  - Transitions can be associated with guards and a business operation
  - Invariants can be associated with states
  - All these operations are plain Java methods
- The execution engine processes events
  - Make evolving the active states of the runinng state machine
  - Execute the guards and business operations

Conclusion

- Critics
  - Due to the complete separation of behavioral and business parts: still some tricky ways to manage method parameters and data flow
- Perspectives
  - Java code generation from UML state machine diagrams (and SC-XML specifications)
  - Enhancing the invariant management for verification purposes
  - Execution trace generation
- To test it
  - Http://www.pauware.com → Technology (libs, sources, examples, guide...)
  - A beginner guide with simple examples and the Microwave code demo: http://ecariou.perso.univ-pau.fr/MegaM@RT2/pauware-presentation.html
  - Contact me for further information: Eric.Cariou@univ-pau.fr