

3M4MDA 2006

European Workshop on Milestones, Models and Mappings for Model-Driven Architecture
Bilbao, Spain, 11th July 2006

In conjunction with European Conference on Model-Driven Architecture (ECMDA) 2006
<http://3m4mda.telin.nl>

Panel Discussion Report

Format

The panel discussion has been organized around the three keywords of the workshop: milestones, models and mappings. An initial statement has been presented by three panelists (João Paulo Almeida for milestones - summarizing also statements presented in the keynote speech by Anneke Kleppe, Jan Aagedal for models, and Olaf Kath for mappings). Each panelist has addressed limitations in the current techniques and technologies, and discussed challenges. The initial statements have triggered discussions, of which the main observations are reported here.

Milestones:

- Two contrasting views have been represented during the discussion with respect to the question of how MDA processes are defined: (i) a view that successful applications of MDA should aim at automating existing well-defined processes in organizations and (ii) a view that MDA processes can be introduced to bring process innovation and not only the automation of existing processes. In the defense of (i) it has been pointed out that organizations are not willing to change their processes to accommodate model-driven development practices. This is particularly the case for large organizations, which should profit from customized model-driven tools. The starting point for application of MDA is in this case the analysis of existing processes by an MDA expert (the availability of such processes is a pre-condition for (i)). In the defense of (ii) it has been argued that the reuse of tools and processes may require changes in existing processes. Changes to existing processes may also be required due to the shift of focus from code to models. Process changes are better accepted by small (autonomous) teams and/or small organisations.
- The distinction of processes (application design processes) and “meta-processes” (processes to define metamodels and transformation specifications) has been identified as important in the discussion. While guidelines for the former can be obtained from existing processes and practices in organizations, more research is needed for methodological support with respect to the latter. What is a good metamodel? What is a good transformation specification?
- There has been agreement that no single MDA methodology will arise, but rather a collection of best practices with the pieces of processes. Obstacles to establish a repository of best practices has been discussed: often organizations are not willing to disclose their processes; processes may not be well defined or well documented.
- In defining an MDA process, it is important to identify the target artifacts, and identifying the opportunities for raising the level of abstraction (possibly models in use or missed opportunities for abstraction).

Models

- Consistency between models at different levels of abstraction should also be supported / verified, possibly with the use of transformations.
- Tools should support model and transformation portability.
- Debugging should be possible at model level, instead of at code level.
- Transformations should be composed out of transformation parts.
- UML is not the problem, if you can keep the consistency between the diagrams.
- Abstraction is important, but abstraction criteria (what you are abstracting from and why) should be explicitly defined in order to make the abstraction useful.
- Pragmatism should be applied to make MDA simple and appealing to users. We should show that transformation reuse can help, and that in some cases quick and dirty ('disposable') transformations should be used instead of the more general ones.
- MDA is about models, but transformations are handy.
- We should not repeat with MDA the historical mistake of Formal Description Techniques (FDTs) in the nineties. People working with FDTs have promised many things (automated verification, correctness preserving transformations, automated implementations, etc.) and very few of these promises have been delivered, which brought discredit to the whole research area from an industrial perspective.

Mappings:

- It is not always obvious that the use of transformations pays off. One should provide convincing arguments to justify a particular application of the model transformation pattern.
- Model consistency should be combined with configuration management in order to be able to cope with realistic problems. Often a model-driven design process is executed by large teams of developers, working on various models simultaneously.
- What is adequate size of a transformation? There should not be 'many abstraction levels between the transformations' (possibly this should be: 'a big abstraction gap between the source and the target models'), because they are impossible to handle for human users. This adequate size is hard to determine. There are no criteria to determine that (for example, should we use 40 small transformations or 3 big ones?). Quality indicators are necessary to define suitable sizes. A Modelware study has revealed that smaller transformations are normally better.
- Reusability of transformations is facilitated if the transformations are small and configurable.
- The use of non-reusable ('disposable' or 'ad hoc') transformations has also been defended during the discussions.

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