

Report about the 2nd Workshop and Session on
**Model-Based Development of Computer Based Systems:
Appropriateness, Consistency and Integration of Models**
ECBS 2004, Brno, May 26-27,

The session and the workshop have been dedicated to the topics

- Model-based development (MBD) of hardware and software systems
- Integrating model-based architecting and requirements engineering
- Modeling change
- System evolution
- Precise semantics and consistency checks
- Model integration, i.e. for Model-Driven Architecture MDA
- Integration of feature modeling

The 7 full papers of the session have been selected by the program committee with 3 independent reviews per paper. The session took place on Wednesday, May 26, 2004.

10:15 –11:45 Session A7; Chair: Matthias Riebisch, Ilmenau Technical University (D)
Features with Fuzzy Probability

A. Pieczyński, S. Robak, A. Walaszek-Babiszewska

Hand-written vs. MOF-based Metadata Repositories: The SOFA Experience

P. Hnětynka and M. Piše

Symbolic Model Checking of UML Statechart Diagrams with an Integrated Approach

V. S. W. Lam and J. Padget

14:00 –16:00 Session A; Chair: Silva Robak, University of Zielona Gora (PL)
Supporting Evolutionary Development by Feature Models and Traceability Links
M. Riebisch

Functional and Object-Oriented Views in Embedded Software Modeling

J. M. Fernandes and J. Lilius

Tool Support for DFD-UML Model-based Transformations

D. Truscan, J. M. Fernandes, and J. Lilius

A Foundation for Tool-Supported Critical Systems Development with UML

J. Jürjens and P. Shabalin

The Workshop took place on Thursday, May 27, from 9:00 to 14:00. about 20 participants showed the relevance of the topic. 6 Position Papers have been submitted:

Model-Based Development of Embedded Software Beyond UML

B. Schätz

Model-Based Development – Beyond Model Transformation

P. Tabeling

Closing the Gap Between Models and Code

P. Wolstenholme

Refinement and Formalization of Use Case Descriptions

M. Riebisch, M. Hübner

Integrating Architecture-based Trade-off Analysis into the design process through tool-assisted modelling

D. Colquitt, J. Leaney, T. O'Neill

Strongly typed Architectural Models for Architecture-based Engineering: Current developments in their definition and description

T. O'Neill, J. Leaney, M. Denford, D. Colquitt, D. Turton, N. Sheridan-Smith, J. Wootton

The participants defined their goals. The common issue consisted in the question of model integration. As a mid-term goal contributions to a standard about Model-Based Development were planned. After a short presentation of the position papers a group work was performed as a discussion of the issues.

As part of the definition of the topics of interest, two attempts to a definition of the terms Model and Model-Based Development have been set up.

Definition "Model"

- Abstraction that provides a specific view
- To understand and to predict the structure and the behavior of complex systems
- To communicate aspects of the system
- Expressed by a notation defined by a syntax and semantics (to some extent) - from formal to intuitive
- Properties: limitations (domain, aspects), trade-off

Definition "Model-Based Development"

- to integrate different kinds of models into a continuous usage throughout the whole life cycle of computer-based systems (CBS).
- models are appropriate for particular life cycle steps
- Between these models a mapping and means of transition shall be elaborated, to persevere persistence of the different kinds of models.

A majority of the participants agreed to form a working group and to continue the work during the following year. A follow-up workshop will take place at the next ECBS conference in Spring 2005 near Washington D.C., U.S.A. A virtual, online mid-term meeting has been planned. To start a continuous work, some tasks for the group members have been defined:

Tasks for everyone

- Subscribe to the mailing list and forum ...
- Answer the questions below
- Contribute to the collection:
 - o Related standards
 - o Available tools
 - o Experience reports
 - o Industrial requirements

Questions to be Answered by everyone – MBD overall

- What is MBD ?
- How is MBD different from other approaches ?
- What is your definition of a "model" ?
 - o Functional, non-functional etc.
 - o What do we want to be the core of the definition ?
 - o What do we want to change ?

- How does „model“ relate to standardized processes, architectures, (basic concepts,) tools etc ?
- What is your favorite model, why, for what domain ?
 - o Describe the benefit of the model !
- Future of MBD
 - o What are the major problems with MBD ?
 - o What would we like to tackle ?
 - o Is there a need for a standard, where is it ?

Questions to be Answered – Model Integration

- How does „model“ relate to standardized processes, architectures, (basic concepts,) tools etc ?
- What is your favorite model, why, for what domain ?
 - o Describe the benefit of the model !
- What other model does your favorite model interface with ?
 - o Requirements – Features
 - o State Charts – MSC
- How to transform from one model to another ?
 - o What are the common entities ?