ITML: A Domain-Specific Modeling Language for Supporting Business Driven IT Management

Chair of Information Systems and Enterprise Modeling
University of Duisburg-Essen, Germany

Presentation at the 9th OOPSLA Workshop on Domain-Specific Modeling
Problem & Motivation

- IT Management: Planning, realizing and maintaining of IT resources – a task of remarkable complexity

- Requires knowledge
  - about IT artifacts, heterogeneous IT infrastructures, ever changing technologies, manifold interdependencies
  - … and about the business!

- Hence, requires involving people with different professional backgrounds

- IT Management as an integrated enterprise function requires methods & corresponding tools to support
  - planning of IT investments in line with business goals
  - business-oriented performance measurement
The Approach in a Nutshell

- Reduction of complexity through conceptual models of IT infrastructures
- Safe & convenient design and use of models through domain specific modeling language
- Support for IT-business alignment through integration with enterprise models
- Promises for higher productivity in development of IT Management software through code generation and reuse
Illustration of The Solution
Supplemented by Instance Information

- No. of current instances: 136
- Total number of faulty instances: 445
- Average Revenue / Instance: $4,157

Utilization

- Availability
  - Average costs / instance: $1.20
  - Average duration: 0.254 minutes

Location

- Data Center Austin
- Data Center Munich, Germany
- Data Center Houston
- Data Center Georgia

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Design Decision: Software Role

**Word Processor** → MS Word

**MS Word** → MS Word 2007 Business Edition

**Software**
- implementationLanguage : String
- installationDate : String
- lastUpdate : Date

**SoftwareRole**
- description : String

**SoftwareRoleAttribute**
- designator : String
- attributeType : String

requires ▶

specialized from ▶
Language Architecture
Integration with Enterprise Modeling

Meta Meta Model
$M_3$

Meta Models
$M_2$

Models
$M_1$

instance of

SML
OrgML
ResML
ITML

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Language Architecture

Tool Implementation

Ulrich Frank: "The MEMO Meta Modelling Language (MML) and Language Architecture", ICB Research Report, University of Duisburg-Essen

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Modeling Tool: MemoCenterNG

- Enterprise modeling and meta modeling tool
  - Meta modeling editor + code generation
  - set of integrated modeling editors
  - fosters integrity of interrelated models through shared concepts

- Based on standardized platform:
  - Eclipse Modeling Framework (EMF)
  - Graphical Modeling Framework (GMF)
  - XMI
  - ...

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Questions, Answers & Discussion

Language Architecture

Meta Model

IT Landscapes

Modelling Tool

ICB
Institute for Computer Science and Business Information Systems

Dipl.-Wirt.-Inf.
Heiko Kattenstroth
Information Systems and Enterprise Modelling

University of Duisburg-Essen
Wirtschaftswissenschaften
Universitätstraße 9
D-45141 Essen, Germany

Phone: +49 (201) 183 4088
Fax: +49 (201) 183 4011
heiko.kattenstroth@uni-_due.de
http://www.icb.uni-due.de/inf

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References & More Information


- Ulrich Frank; David Heise; Heiko Kattenstroth; Hanno Schauer: "Designing and Utilising Business Indicator Systems within Enterprise Models – Outline of a Method" in Peter Loos; Markus Nüttgens; Klaus Turowski; Dirk Werth (ed.): Modellierung betrieblicher Informationssysteme (MobIS 2008), GI, Bonn, Vol. 141, Lecture Notes in Informatics, 2008, pp. 89-105.


- Ulrich Frank; David Heise; Heiko Kattenstroth: "Use of a Domain Specific Modeling Language for Realizing Versatile Dashboards" in Matti Rossi; J. Gray; J. Sprinkle; Juha-Pekka Tolvanen (ed.): Proceedings of the 9th OOPSLA workshop on domain-specific modeling (DSM), Helsinki Business School, Helsinki, 2009 (accepted for publication).