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Spy On Your Models

Frédéric Madiot, Hugo Bruneliere

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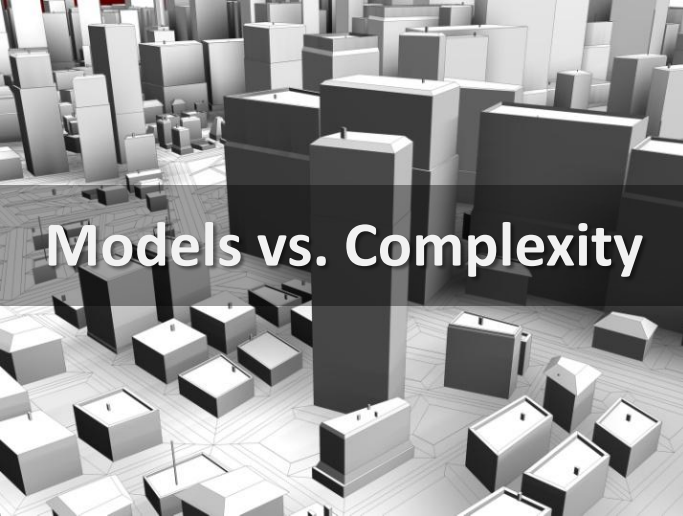
Spy On Your Models

Frederic Madiot (Obeo) - Hugo Bruneliere (INRIA)

22nd of March 2011



Models vs. Complexity



Granularity of the concepts to be represented

Size of the subset to be represented

Reality

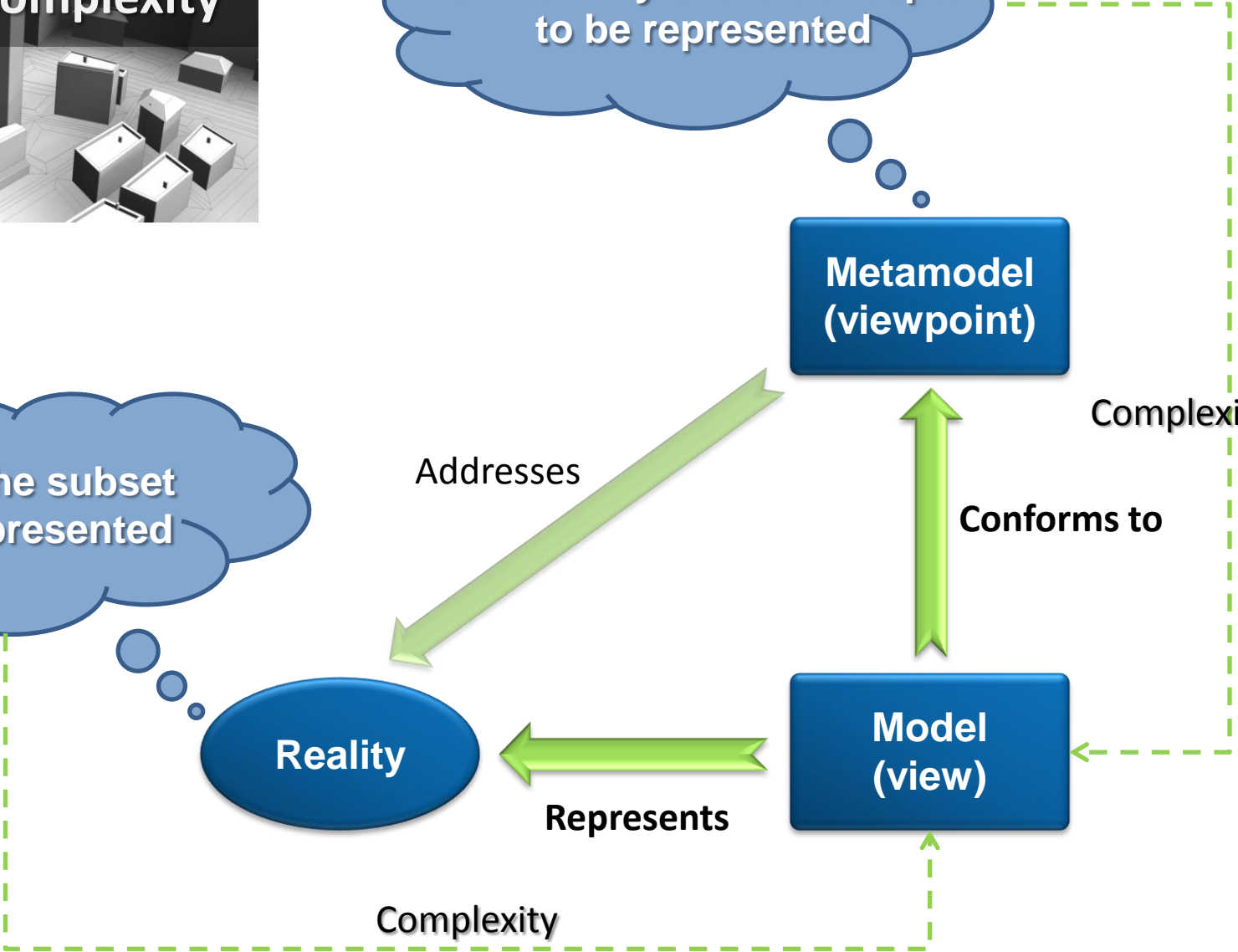
Metamodel (viewpoint)

Model (view)



Complexity

Complexity



Complex Models

Reverse Engineering

- Large legacy applications
- Variety of concepts (architecture, data structure, algorithms, etc)

System Engineering

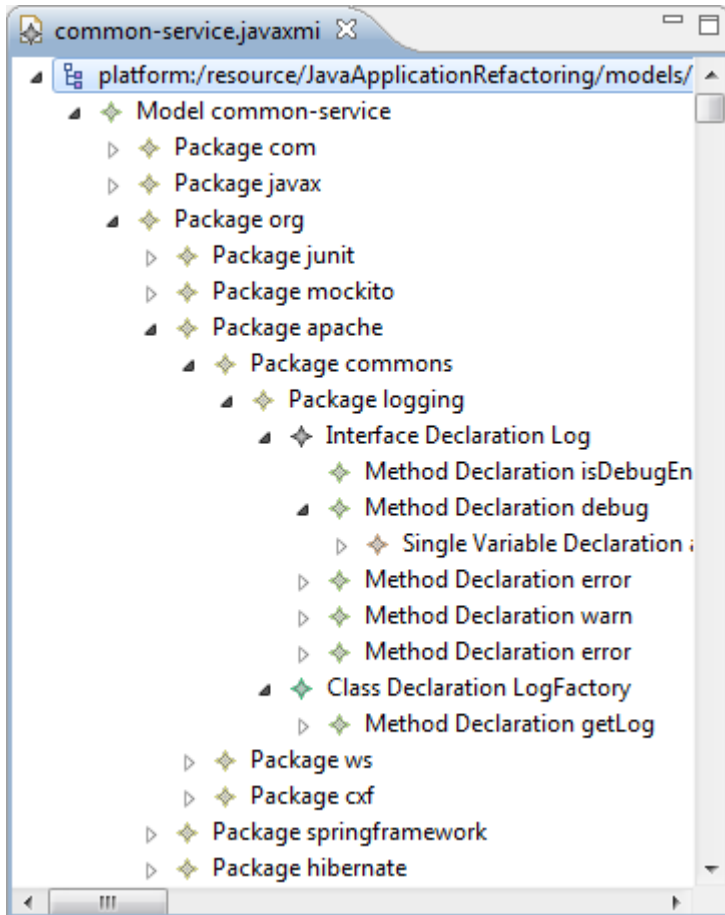
- Complex engineering projects
- Interdisciplinary field of engineering (ex: Autosar for the Automotive industry)

Data Representation

- Complex data structures
- Volumetry

EMF Reflexive Editor

Default EMF model editor



Metamodel independence



Direct access to elements

– Tree must be browsed



Advanced navigation

– Only container, relations not visible



Dynamic customization

– Static with EMF Edit

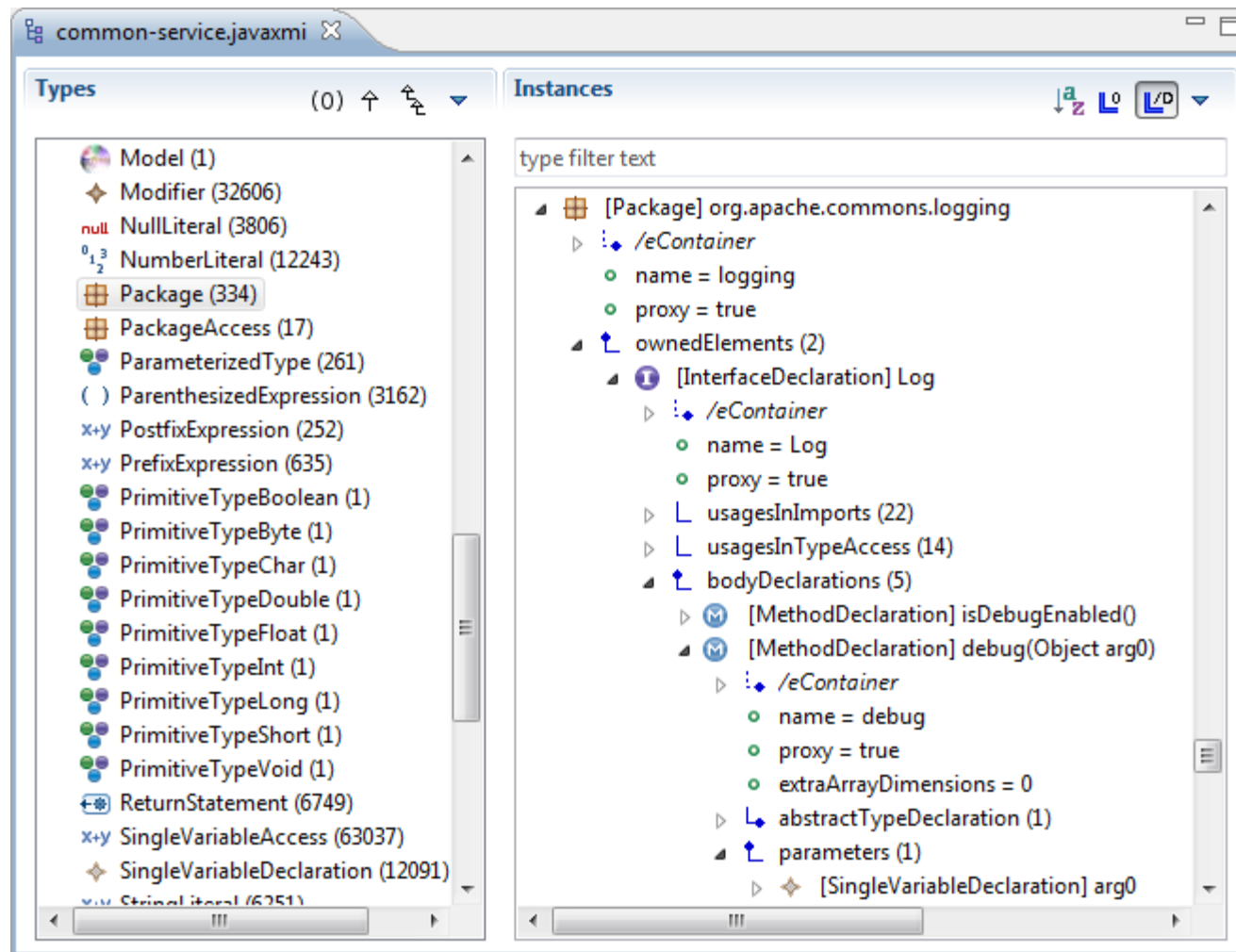


Multi-language querying

– Specific integration required

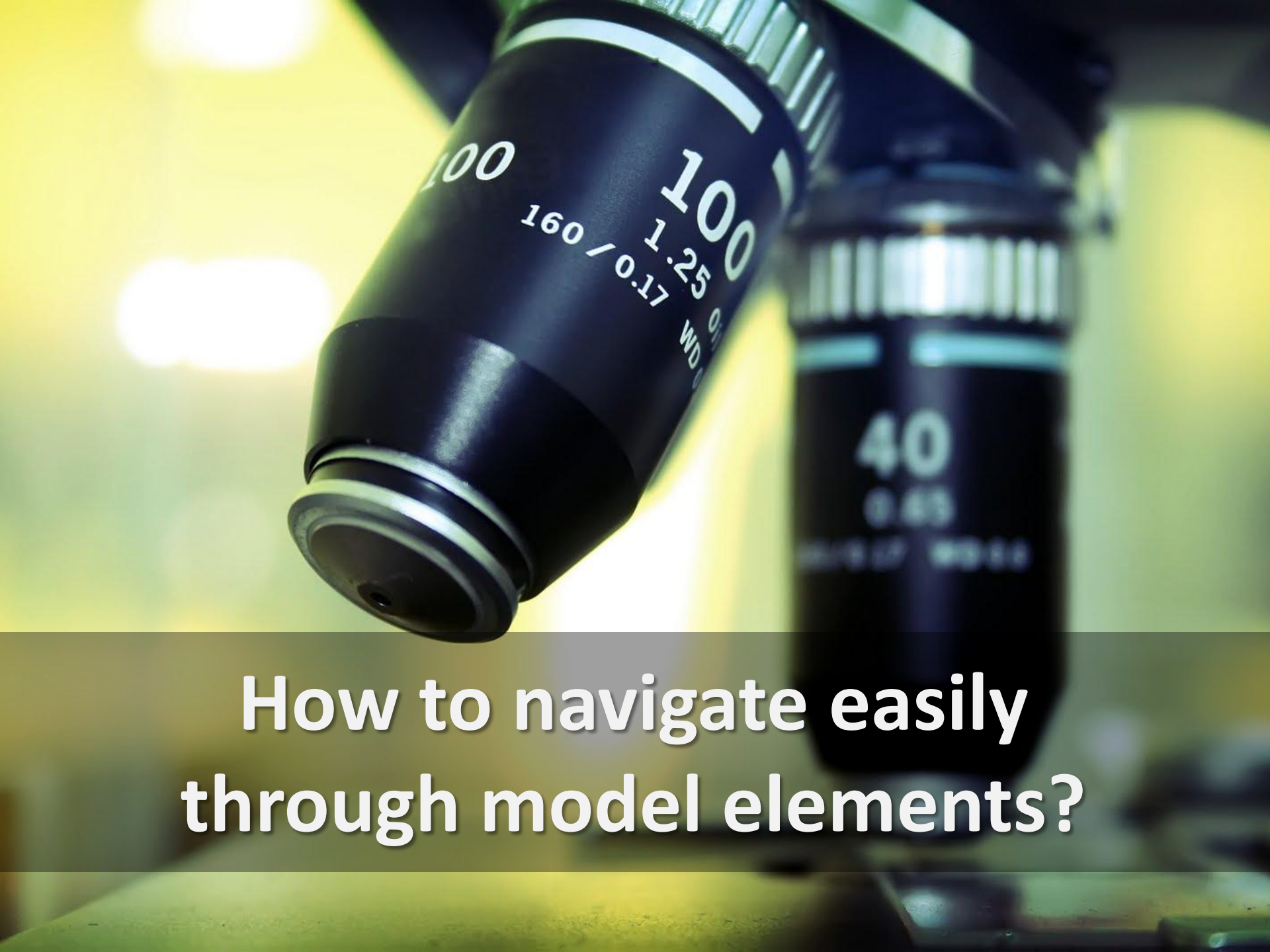
MoDisco Model Browser

A feature-rich EMF model editor





**How to directly access to
model elements in large models?**



**How to navigate easily
through model elements?**

**How to inspect
the model using
multi-language
queries?**





**How to dynamically customize
the MoDisco Model Browser?**

Eclipse-MDT MoDisco Project

An **Eclipse platform** to support

Software Modernization projects

- Official Eclipse Modeling project (in MDT)
 - Open-source (EPL licence)
 - Based on other Eclipse Modeling projects
 - Released with Helios & coming Indigo
- Supported by the OMG
 - Eclipse implementations for
 - KDM (Knowledge Discovery Metamodel)
 - SMM (Structured Metrics Metamodel)
 - ASTM (Abstract Syntax Tree Metamodel)



MoDisco Modernization Use Cases

Legacy Technologies

Source code



Databases



Configuration files



Other sources

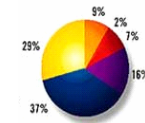


Scenarios

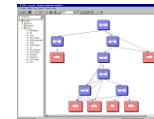
- Quality Analysis
- Understanding
- Code Refactoring
- Technical Migration

Outputs

Metrics



Models



New system



Documentation



MoDisco

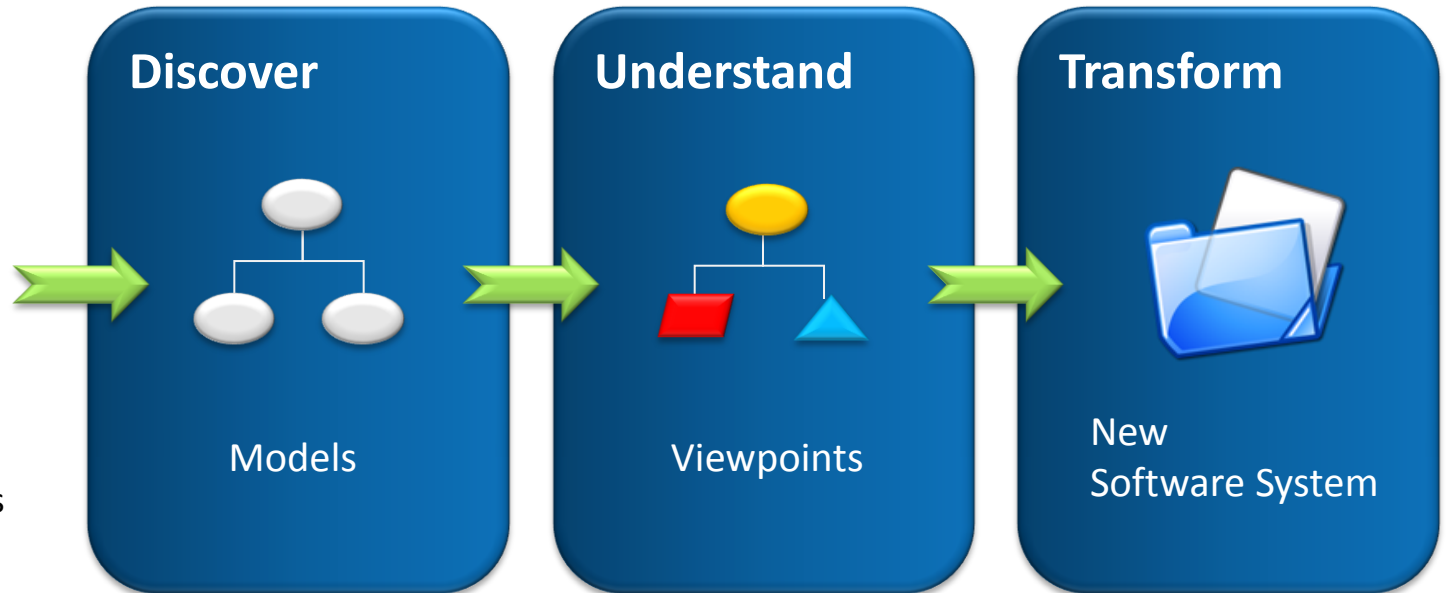
Use **models** to represent and manipulate
artifacts of existing systems

Existing
Software System



Software artifacts :

- source code
- configuration files
- tests
- database
- ...



MoDisco Architecture

Supported Technologies

Java

- ✓ Metamodel
- ✓ Discoverer
- ✓ Generator
- ✓ Transfo. to KDM

JSP

- ✓ Metamodel
- ✓ Discoverer
- ✓ Generator

XML

- ✓ Metamodel
- ✓ Discoverer
- ✓ Generator

...

Discovery Manager



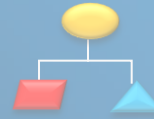
Plug and orchestrate transformations

Model Browser



Navigation through complex models

Customization & Extensibility



Definition of specific Viewpoints

OMG/ADM Standards



Pivot Metamodels (SMM & KDM)

Infrastructure

Eclipse Modeling projects

Who is working on MoDisco?



- Software company providing model-driven solutions
- Eclipse Member
- 2 committers on MoDisco (project col-leader)
- Leader of the EMFT-EMF Facet project



- Joint team between INRIA & Ecole des Mines de Nantes (EMN)
- Research focused on MDE core technologies and their concrete applications
- 1 committer on MoDisco (project co-leader)
- Committers on other projects (M2M-ATL, EMFT-EMF Facet)



- Software company specialized in the MDE approach
- Eclipse Strategic Member
- 1 committer on MoDisco
- 14 committers on other projects

Thank You!

MoDisco Links

- <http://www.eclipse.org/MoDisco/>
- <http://wiki.eclipse.org/MoDisco/Components/ModelBrowser>

Partners

- <http://www.mia-software.com>
- <http://www.emn.fr/x-info/atlanmod>
- <http://www.obeo.fr>

Blogs

- <http://fmadiot.blogspot.com/>
- <http://modeling-languages.com/blogs/jordi>

