



HAL
open science

How to Deal With Your IT Legacy? Reverse Engineering with MoDisco...

Hugo Bruneliere, Frédéric Madiot

► **To cite this version:**

Hugo Bruneliere, Frédéric Madiot. How to Deal With Your IT Legacy? Reverse Engineering with MoDisco.... EclipseCon 2010, Mar 2010, Santa Clara, Californie, United States. hal-00534417

HAL Id: hal-00534417

<https://hal.science/hal-00534417>

Submitted on 11 Apr 2023

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



How to Deal With Your IT Legacy? Reverse Engineering with MoDisco...



Hugo Brunelière
Frédéric Madiot

INRIA / AtlanMod team
Mia-Software

Overview



a **Model-Driven** platform
for **Software Modernization** projects

Support multiple
Legacy Technologies

Support multiple
Modernization Scenarios

Support multiple
Outputs

Source code



Databases



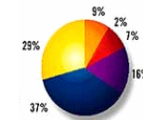
Configuration
files



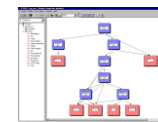
Other sources



- Quality Assurance
- Understanding
- Refactoring
- Technical Migration



Metrics



Models



New system

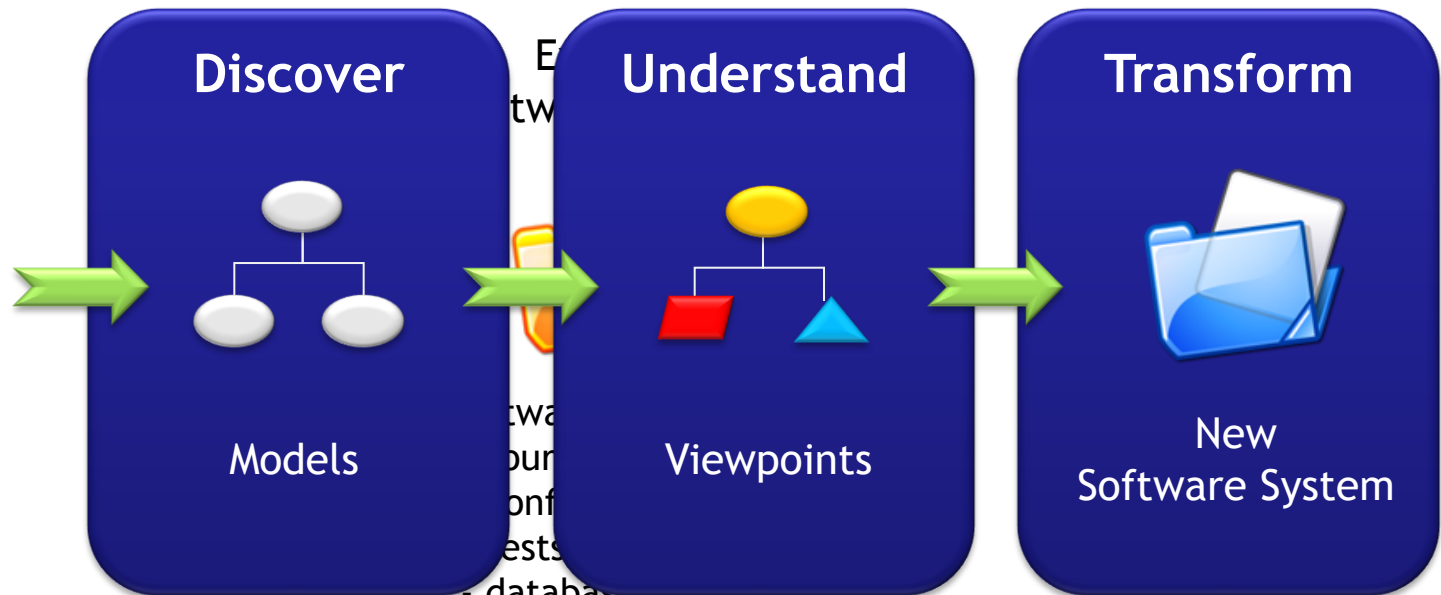


Documentation

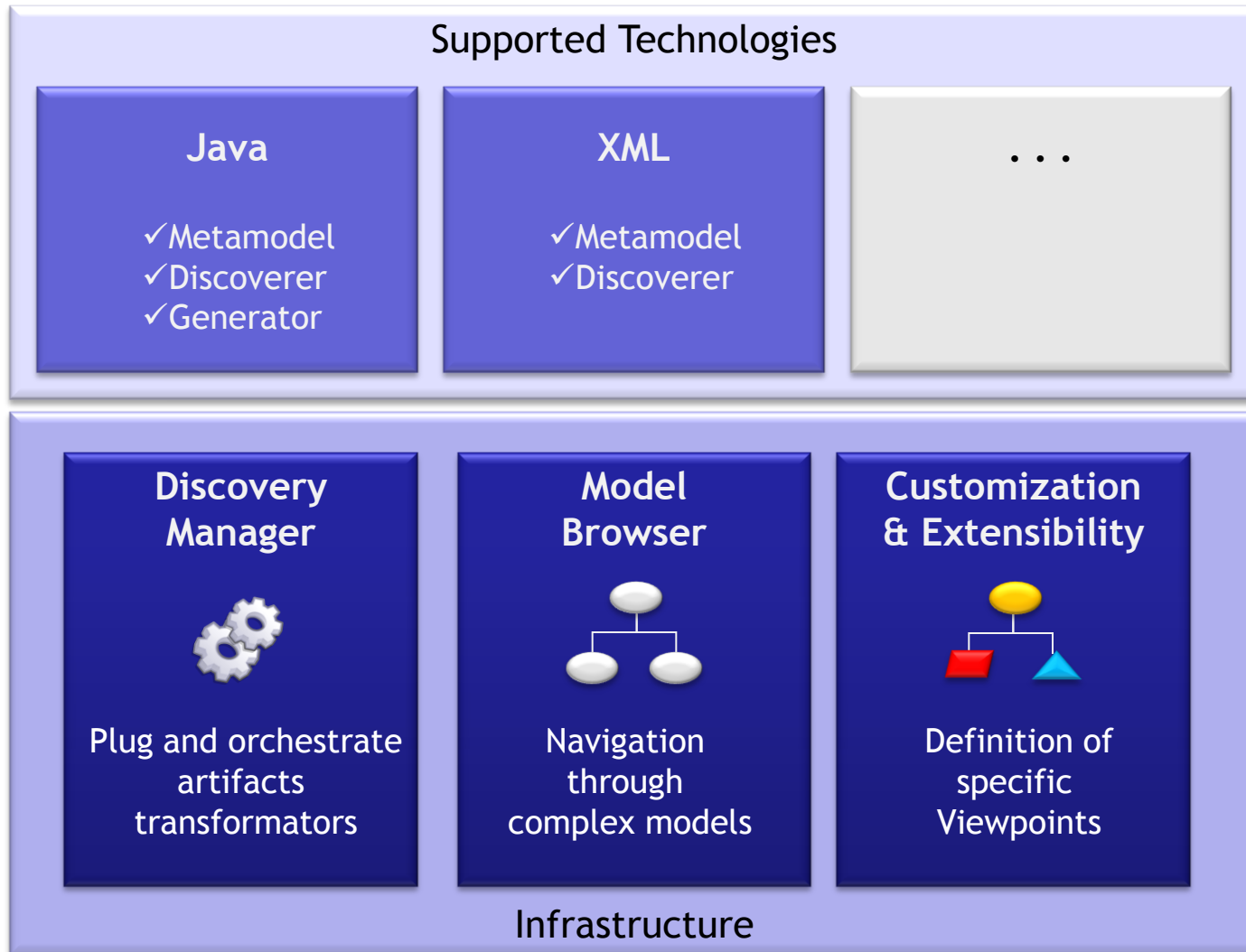
Approach



Models to represent and manipulate
artifacts of existing systems



Architecture



Legacy applications in Java ?



From the moment one writes a line of code, it becomes legacy, and that legacy accumulates (Grady Booch)

- Samples



- LinkedIn > 1M lines of java code
- Texas Health (TIERS application) > 2.5M lines of java code
- CruiseControl > 5M lines of java code
- Eclipse (Galileo) > 24M lines of java code
- SAP (NetWeaver) > 24M lines of java code (255k classes)

- Continuous evolution

- JDK versions x Frameworks x Design Patterns

Complex models ?



Java metamodel :

- 126 types
- 173 references

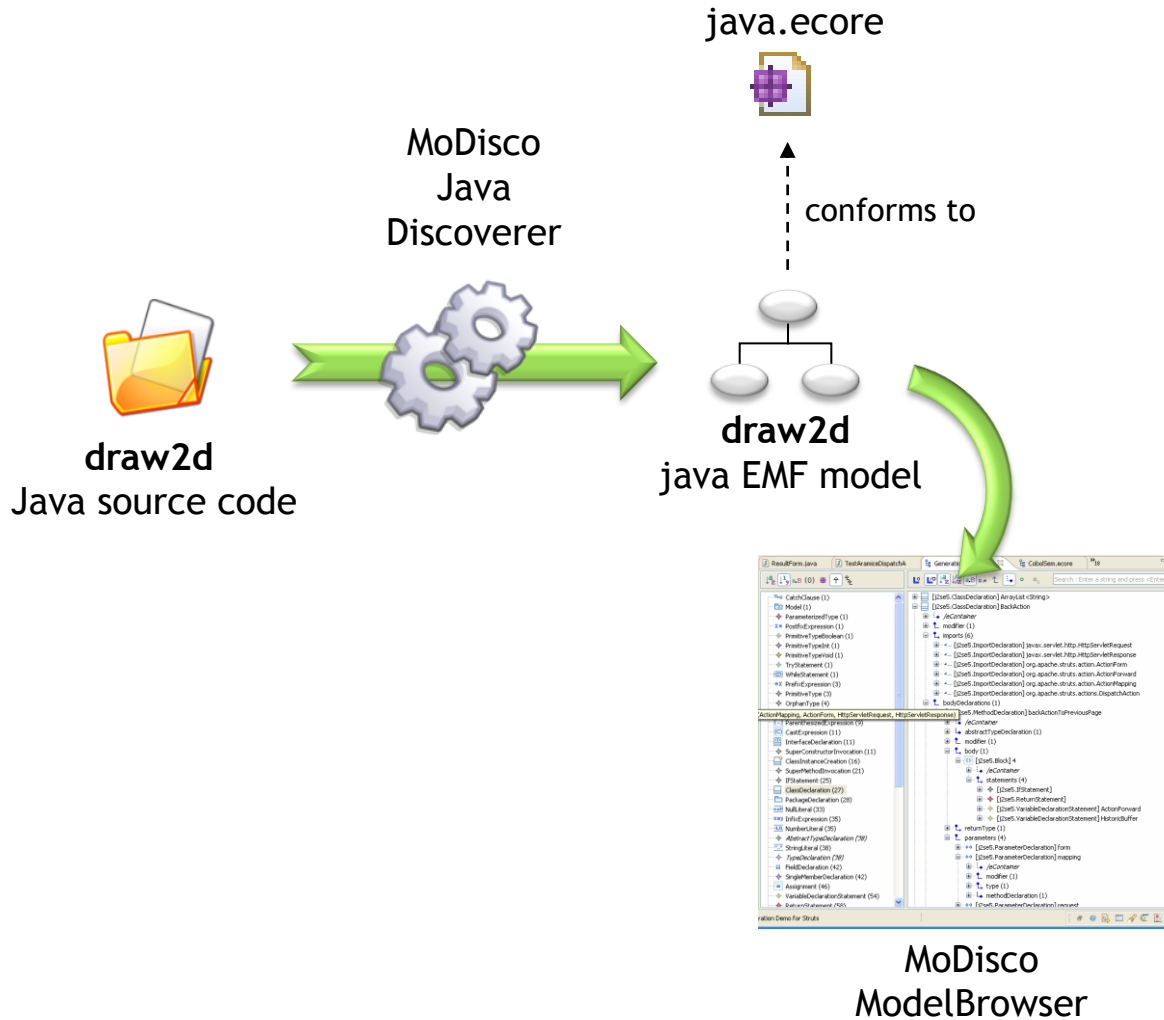
Example :

Java model of **draw2d** :

- org.eclipse.draw2d
- org.eclipse.draw2d.tests

447 Java classes \Rightarrow **144 374** nodes !

MoDisco Demo



Find Patterns in your Models !



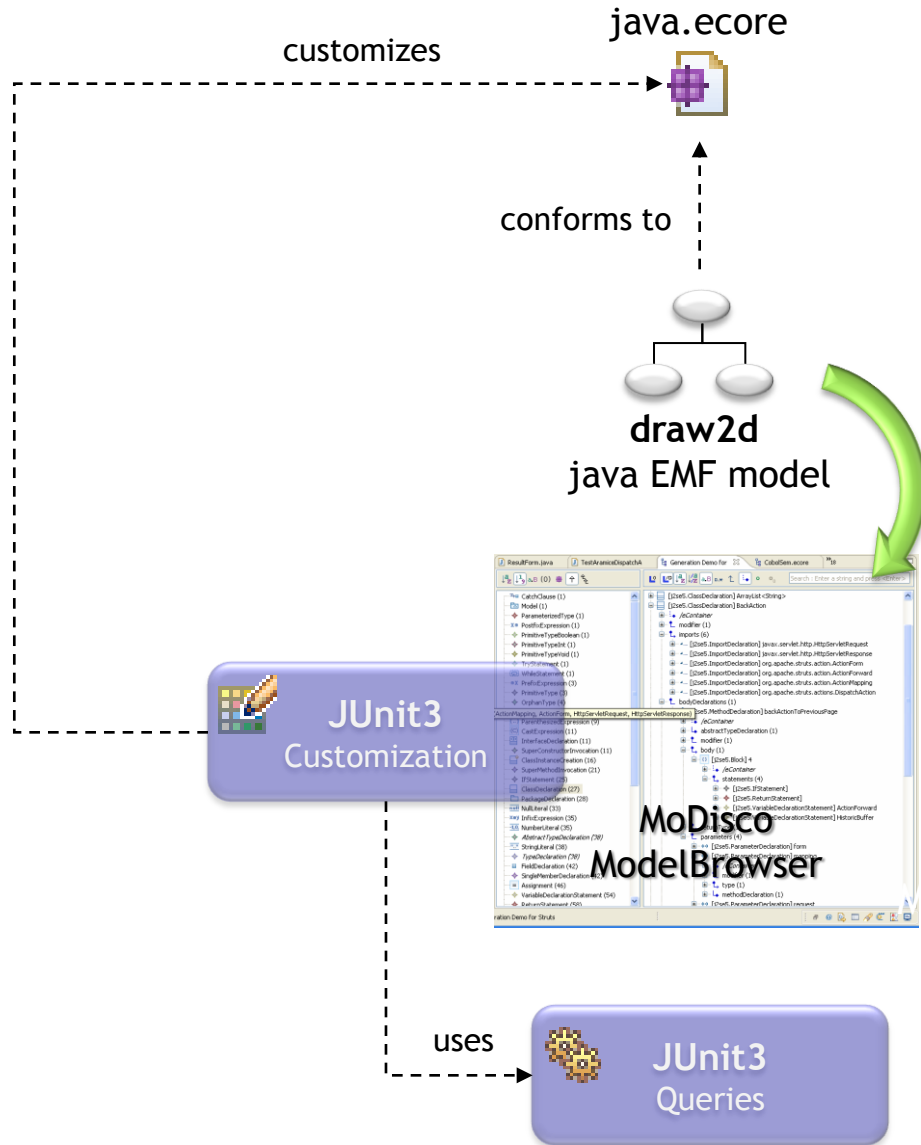
Define and dynamically plug
your own
Facets & UI Customizations

Example

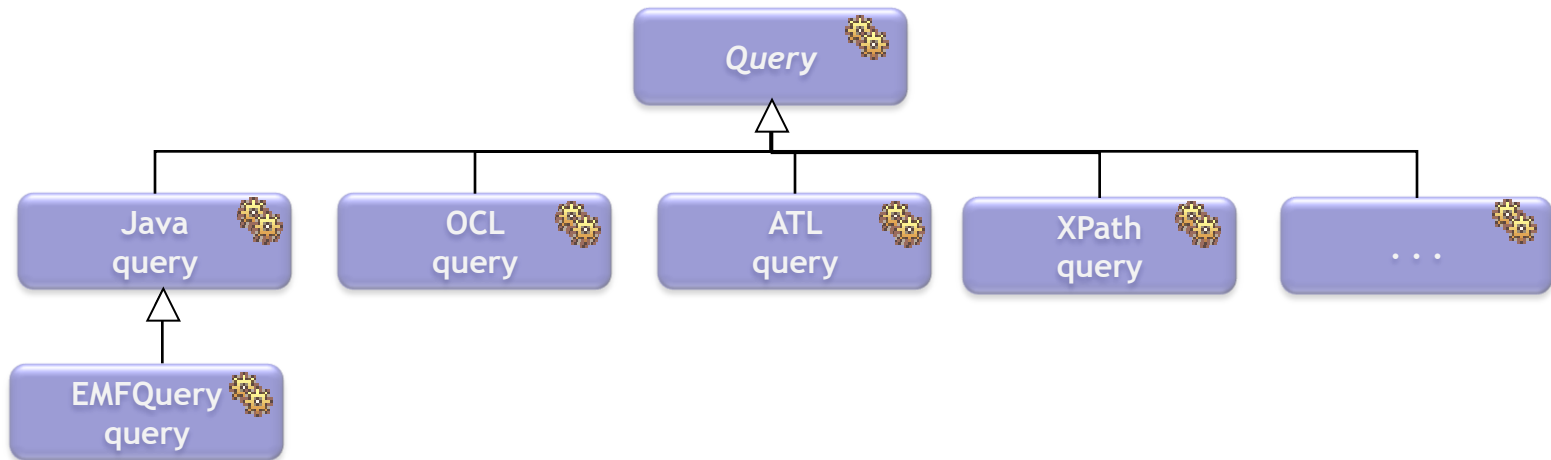
Decorate the Java model of
org.eclipse.draw2d.tests
To highlight **JUnit** patterns:

- Test suite
- Test case
- Test

MoDisco Demo

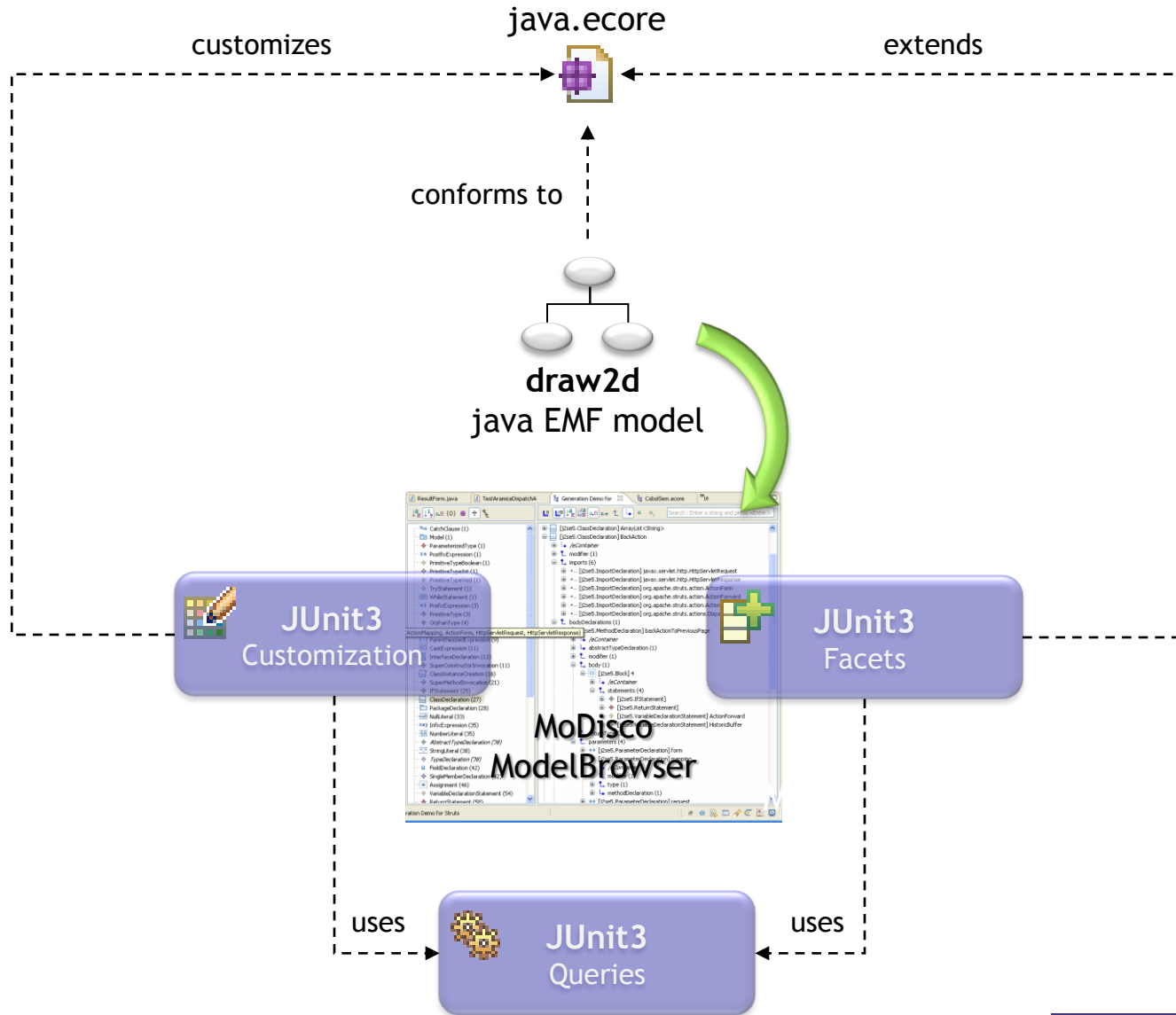


MoDisco Demo

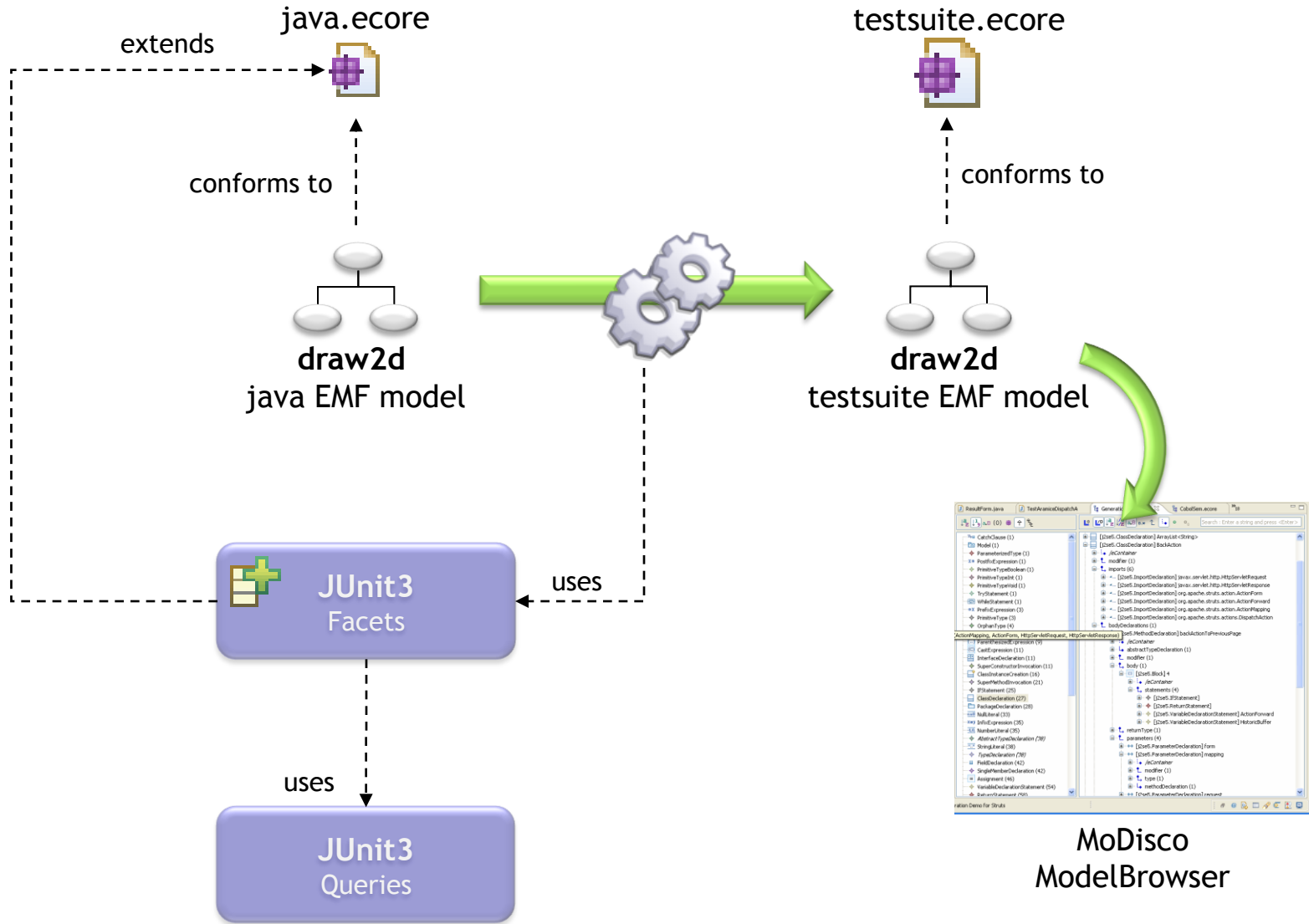




MoDisco Demo



MoDisco Demo

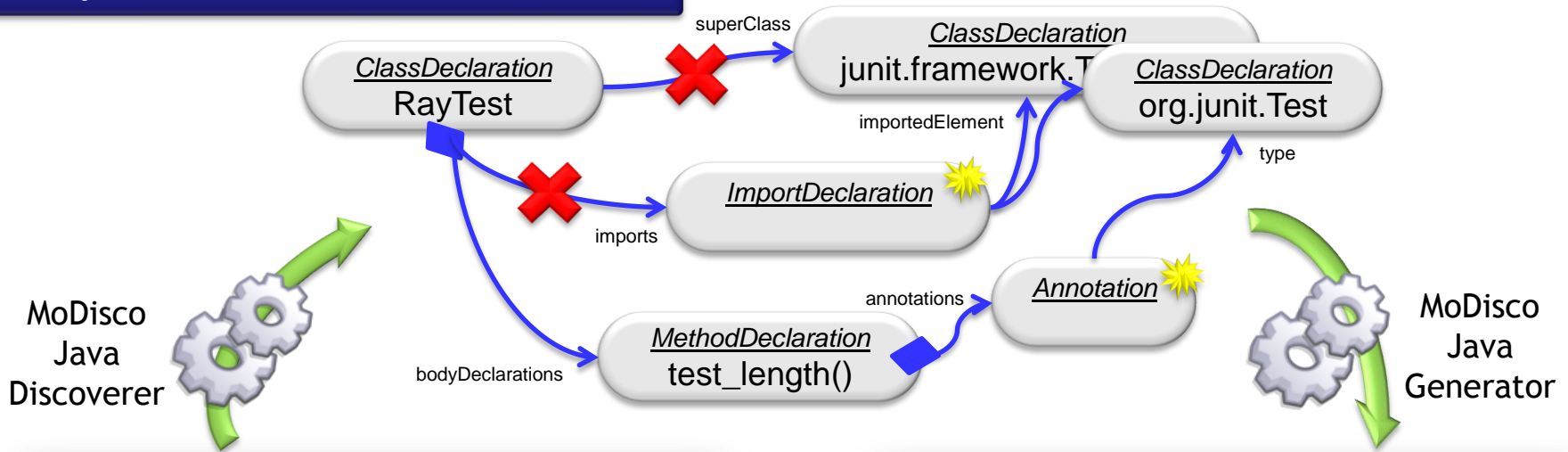


MoDisco ModelBrowser

Transform and Regenerate ...



Example : from JUnit3 to JUnit4



```
package org.eclipse.draw2d.test;

import junit.framework.TestCase;
import org.eclipse.draw2d.geometry.Ray;

public class RayTest extends TestCase {

    public void test_length() {
        testLengthValues(3, 4, 5);
        testLengthValues(0,
            Integer.MAX_VALUE,
            Integer.MAX_VALUE);
    }
}
```



```
package org.eclipse.draw2d.test;

import org.junit.Test;
import org.eclipse.draw2d.geometry.Ray;

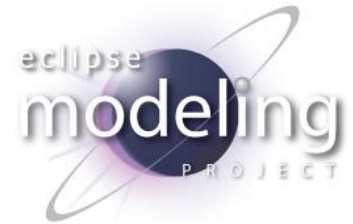
public class RayTest {

    @Test
    public void test_length() {
        testLengthValues(3, 4, 5);
        testLengthValues(0,
            Integer.MAX_VALUE,
            Integer.MAX_VALUE);
    }
}
```

Who is involved in MoDisco ?



- The MoDisco team
 - 6 committers
 - 1 from INRIA
 - 5 from Mia-Software
 - Several regular active contributors
- Supported by the OMG (ADM TF)
 - Reference implementations of standards from the
 - Architecture Driven Modernization Task Force
 - KDM (Knowledge Discovery Metamodel)
 - SMM (Software Metrics Metamodel)
- Supported by the European Commission
 - Project initiated by INRIA in the context of
 - the MODELPLEX IST-FP6 European Project





Questions ?

www.eclipse.org/gmt/modisco

MoDisco Downloads




MoDisco	Eclipse	Java
0.8	3.8 (Helios)	5.0
0.7	3.5 (Galileo)	5.0

Latest Releases

>> [0.7.1 \(2009/10/12\)](#)  OK ✓

0.8.0 Stable Builds

>> [0.8.0M6 \(2010/03/16\)](#)  OK ✓

>> [0.8.0M5 \(2010/02/01\)](#)  OK ✓

>> [0.8.0M4 \(2010/01/19\)](#)  OK ✓



Questions ?

www.eclipse.org/gmt/modisco

MoDisco Downloads

MoDisco	Eclipse	Java
0.8	3.6 (Helios)	5.0
0.7	3.5 (Galileo)	5.0



Latest Releases

>> [0.7.1 \(2009/10/12\)](#)  OK ✓

0.8.0 Stable Builds

>> [0.8.0M6 \(2010/03/16\)](#)  OK ✓

>> [0.8.0M5 \(2010/02/01\)](#)  OK ✓

>> [0.8.0M4 \(2010/01/19\)](#)  OK ✓