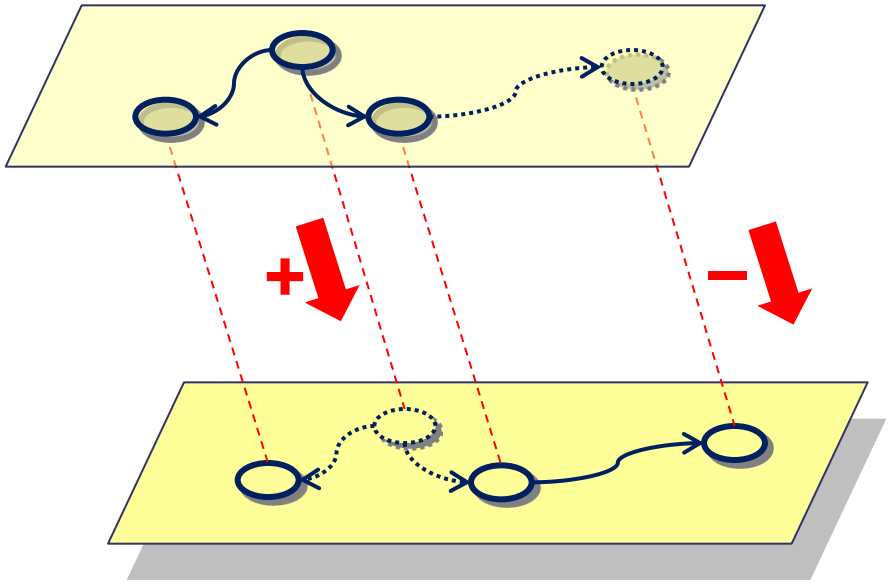
Where there is modeling, there is merging

ECLIPSECON FRANCE, 24/06/2015

Model merging?



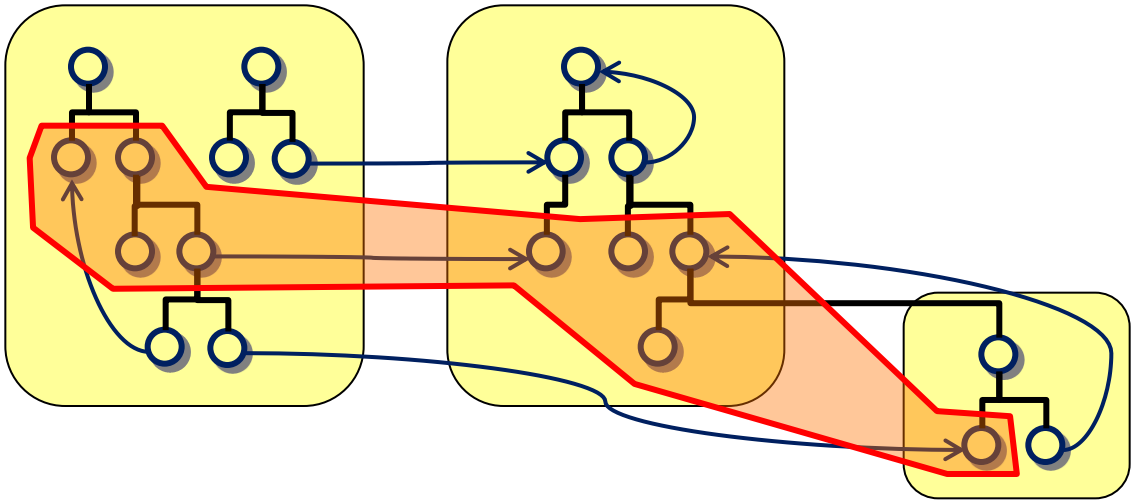
- Transfer data
- Align (totally/partially) model structures
- Report changes
- …

EMF Diff/Merge

Vision

- Merging = **primitive, consistency-preserving operation** for model manipulation, transformation, evolution

- Operates on arbitrary **model scopes** whose behavior can be customized



http://wiki.eclipse.org/EMF_DiffMerge

Case 1: Version Control

INTEL

Version control of models
with multiple SCMs
based on EMF Diff/Merge*
in Intel® CoFluent™ Studio

Once upon a time… a product

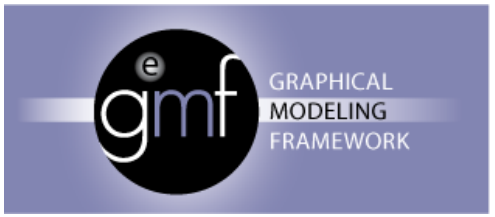
A modeling and simulation framework

for predicting system behavior and performance

before starting hardware and software design

http://cofluent.intel.com

Technologies



Problem

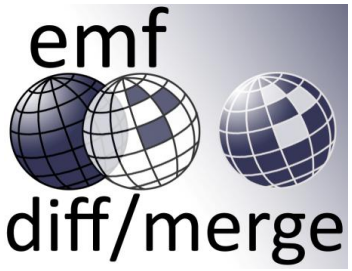
How to compare models?

- Locally
- Shared using various SCMs

Needs to

- Be sexy!
- No framework labels like Edge, Node
- Ensure graphic/semantic cohesion

The solution



- Model consistency preservation
- Provides extendible API
- Easy integration
- Very responsive team on forum/bugs

What we've done

GUI integration with Eclipse Compare

- Compare with each other
- Compare with local history

GUI integration

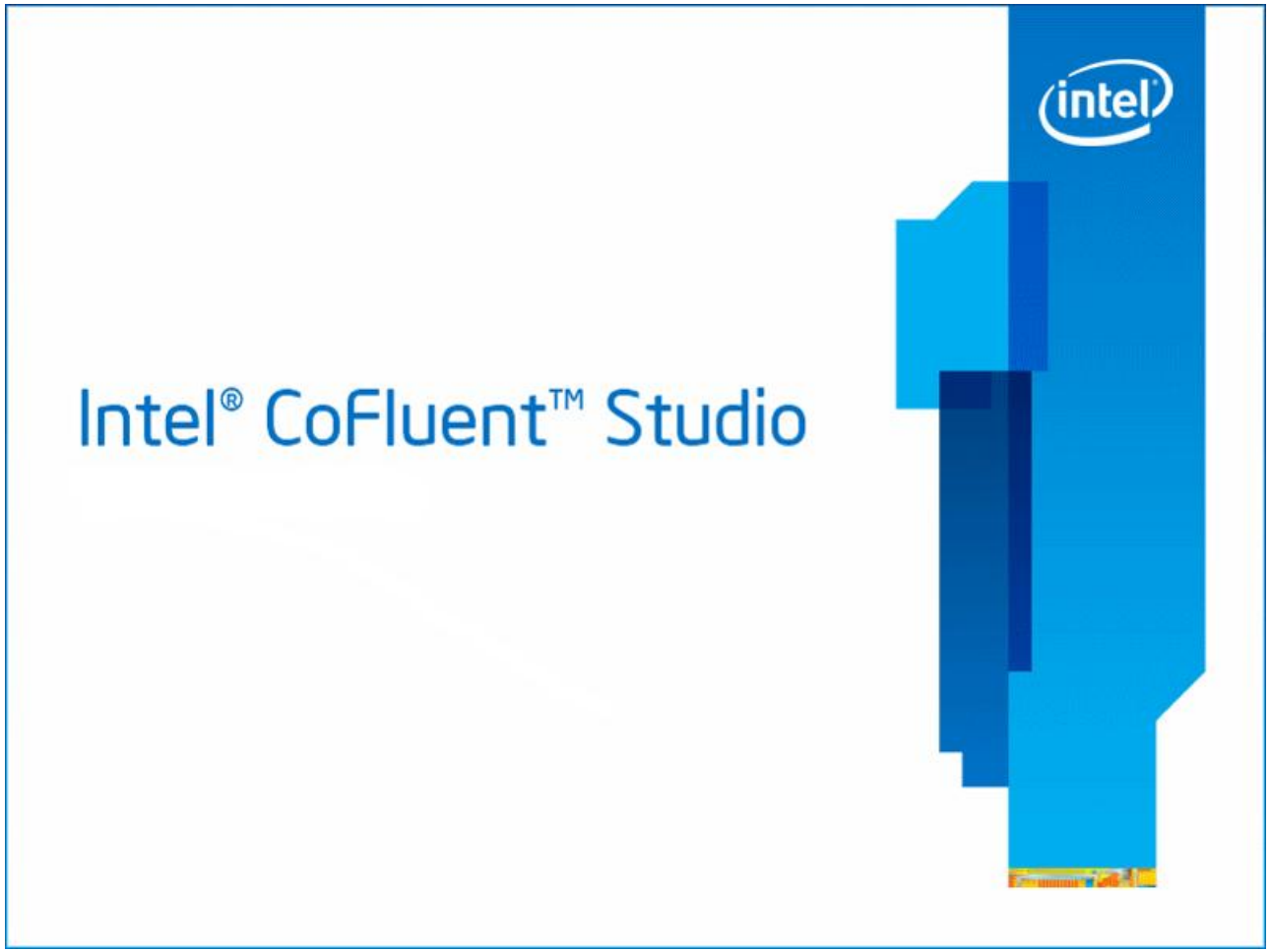
- With Git*
- With Perforce*
- With Subversion*

Logical models integration

Customized UX

- LabelProvider/ContentProvider
- Menus
- Resource load/unload

Demo



Wait… happy ending!

Let's contribute

- Logical model support
- Local history support
- Git* support
- Perforce* support
- Subversion* support

Represent 60 classes & ~4000 LOC

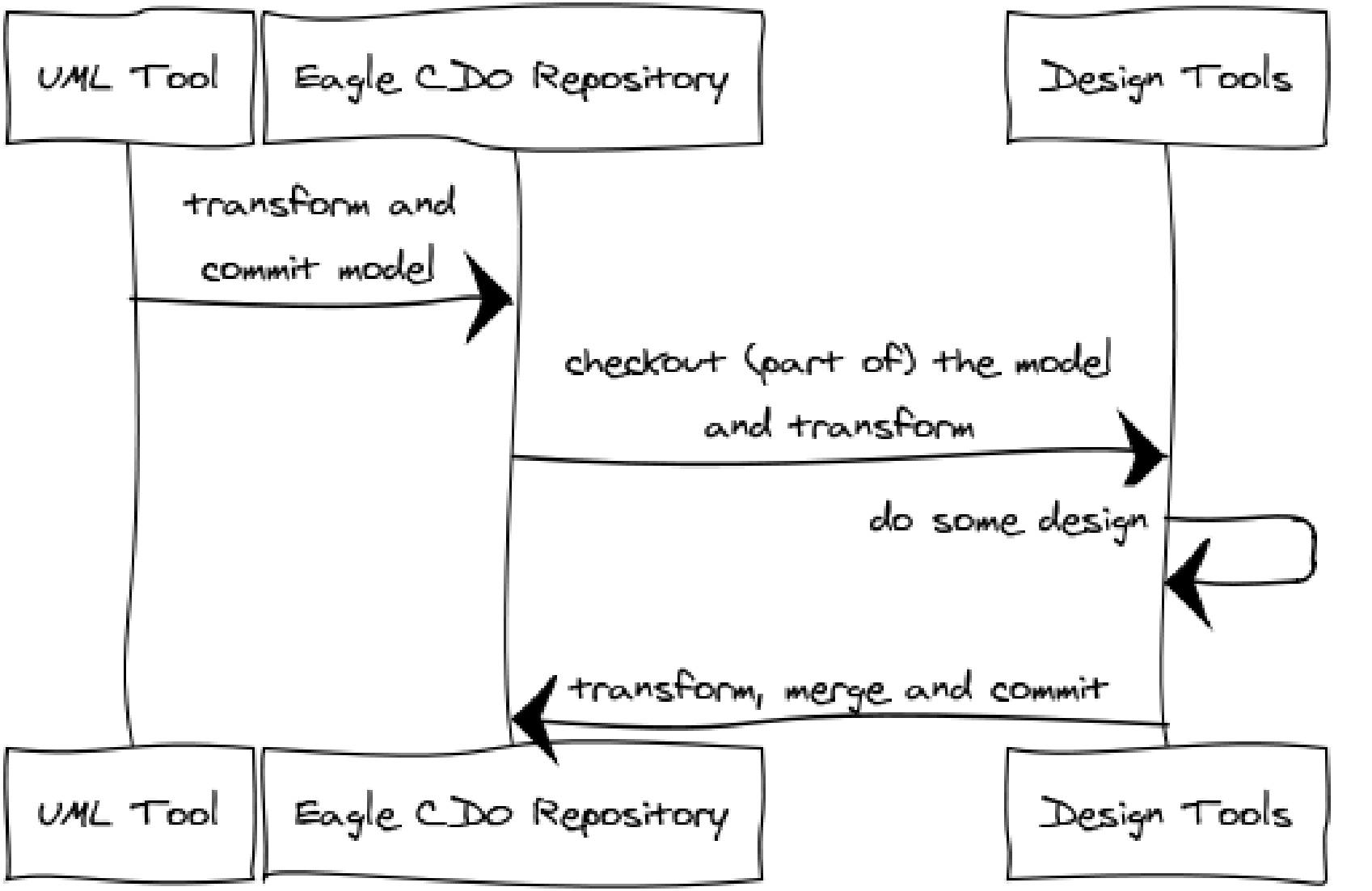
https://www.eclipse.org/forums/index.php/t/1066288/

Case 2: Incremental model transformations

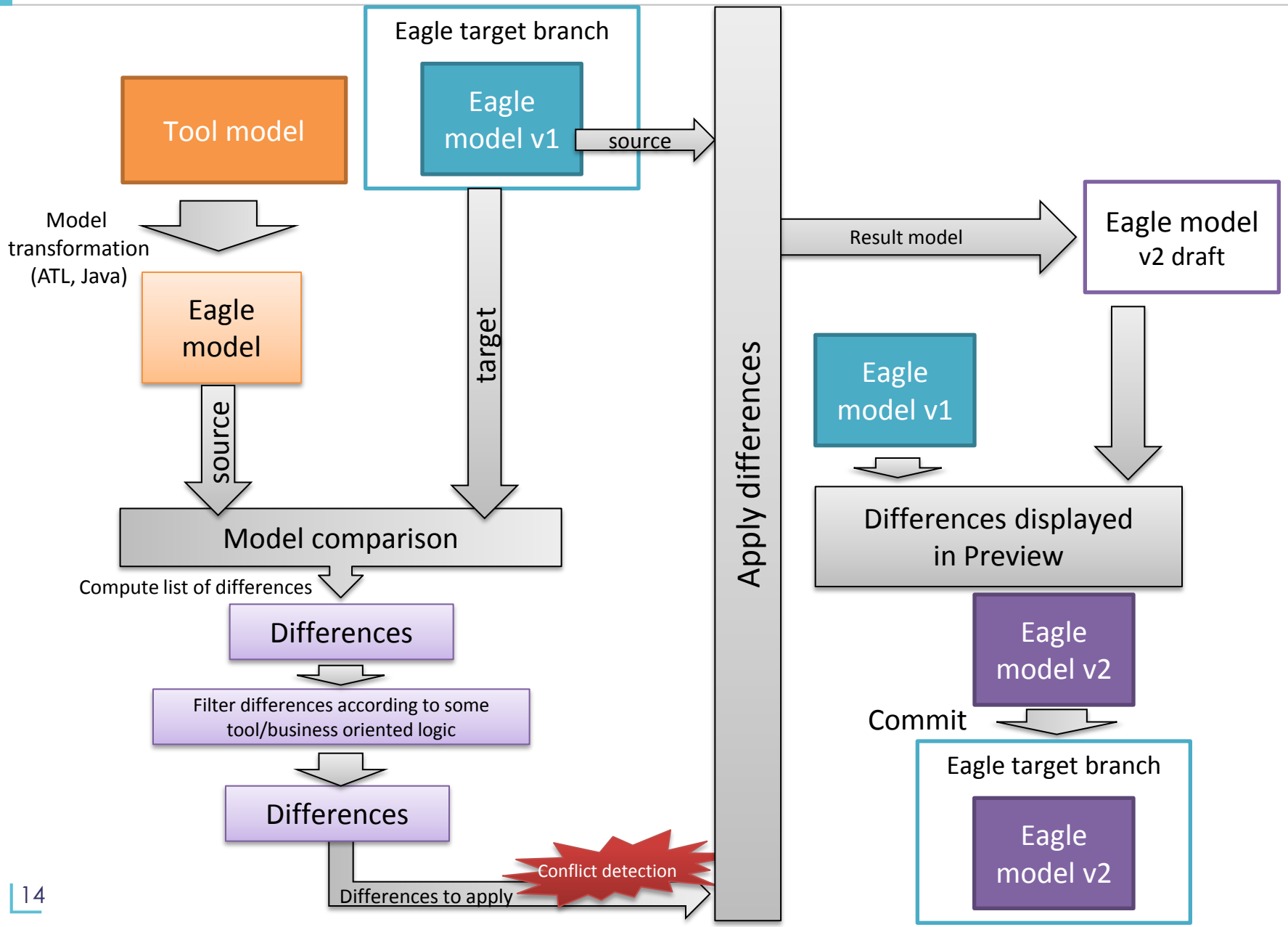
ATOS

CDO-based model infrastructure with incremental import/export

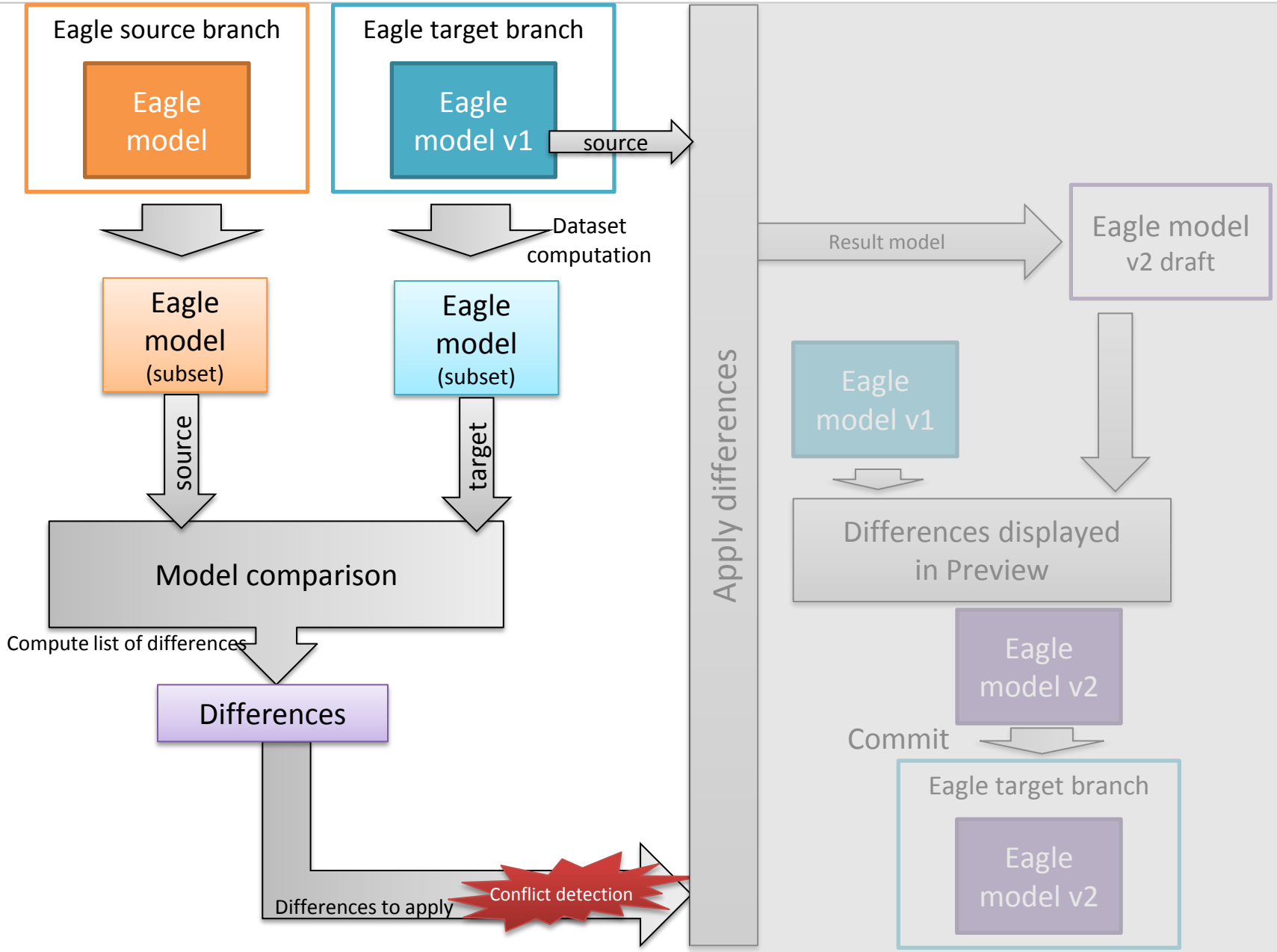
Solution overview



Tool transformation and import



Merge between branches

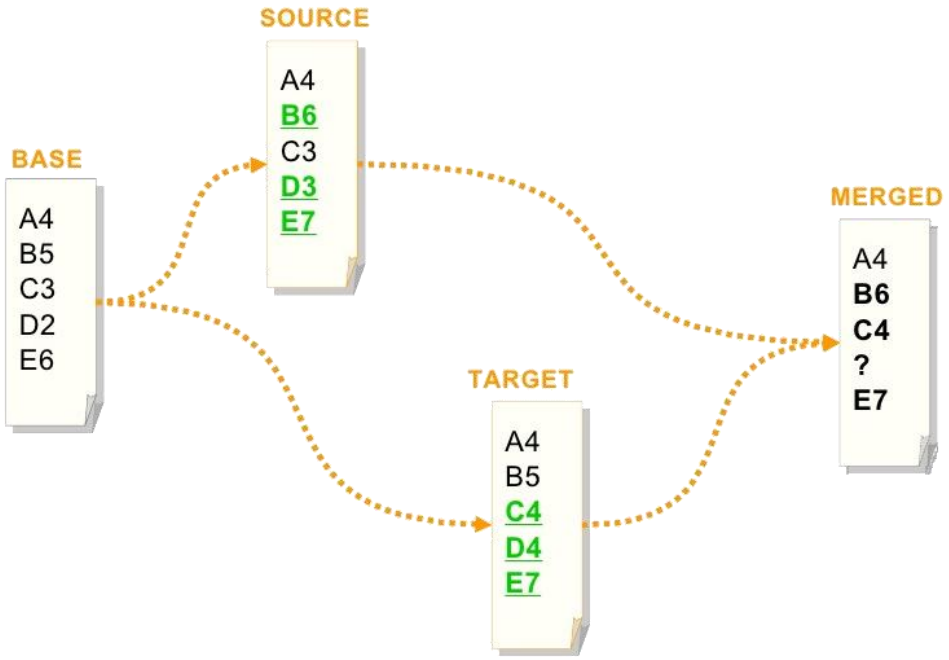


CDO & Diff/Merge integration

Diff/Merge customization

- Match policy (ID-based)
- Merge policy

3-way merge using the ancestor pulled from the CDO history



Happy ending… again

Let's contribute!

- Tracking of model scope for merge actions
- Higher-level 3-way conflict detection

Case 3: Modeling Patterns

THALES

Modeling Pattern tool
for Sirius-based environments

Modeling Patterns

Pattern [engineering]: a solution to a recurring problem

"Modeling pattern": a modeling principle that reflects a pattern

- Data
- Constraints
- Graphical representations

A dedicated tool?

Usage of the tool

- Extract a pattern from a model
- Store it in a catalog
- Reuse it in other models [with roles]
- Evolve patterns and models, check conformance/synchronize when needed

It is rather fun because

- All is done though dialogs, no programming
- Diagramming concerns are handled via Sirius

http://wiki.eclipse.org/EMF_DiffMerge/Patterns

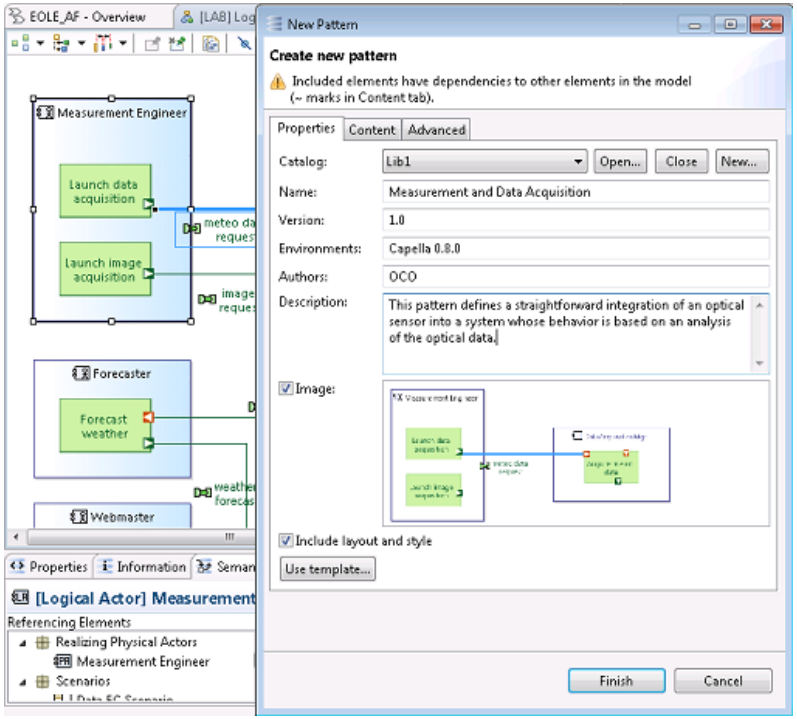
thanks to MERGE SAFETY & SECURITY

Demo

Capella

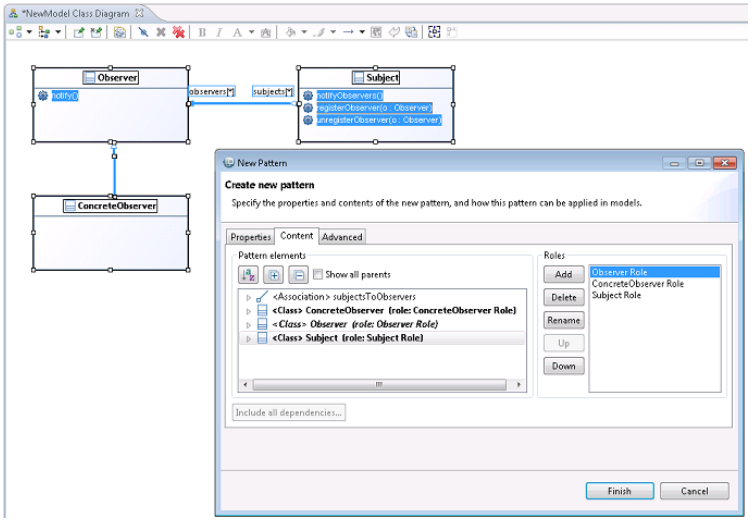
PolarSys

Open Source Tools for Embedded Systems



UML Designer

graphical tooling to edit and visualize UML models



Looking into the future …

« EMF Convergence » ?

The end \o/

TIME FOR QUESTIONS
(UNLESS WE REALLY TALKED TOO MUCH)