MDEForge
an extensible software-as-a-service modeling platform

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Model-Driven Engineering

A software discipline that shifts the focus of software development from coding to modeling

Models

- are abstractions representing knowledge and activities that govern a particular application domain
- use domain concepts rather than computing concepts, ie they can be defined/used by non computer scientists
- have first-class status

Model-Driven Engineering

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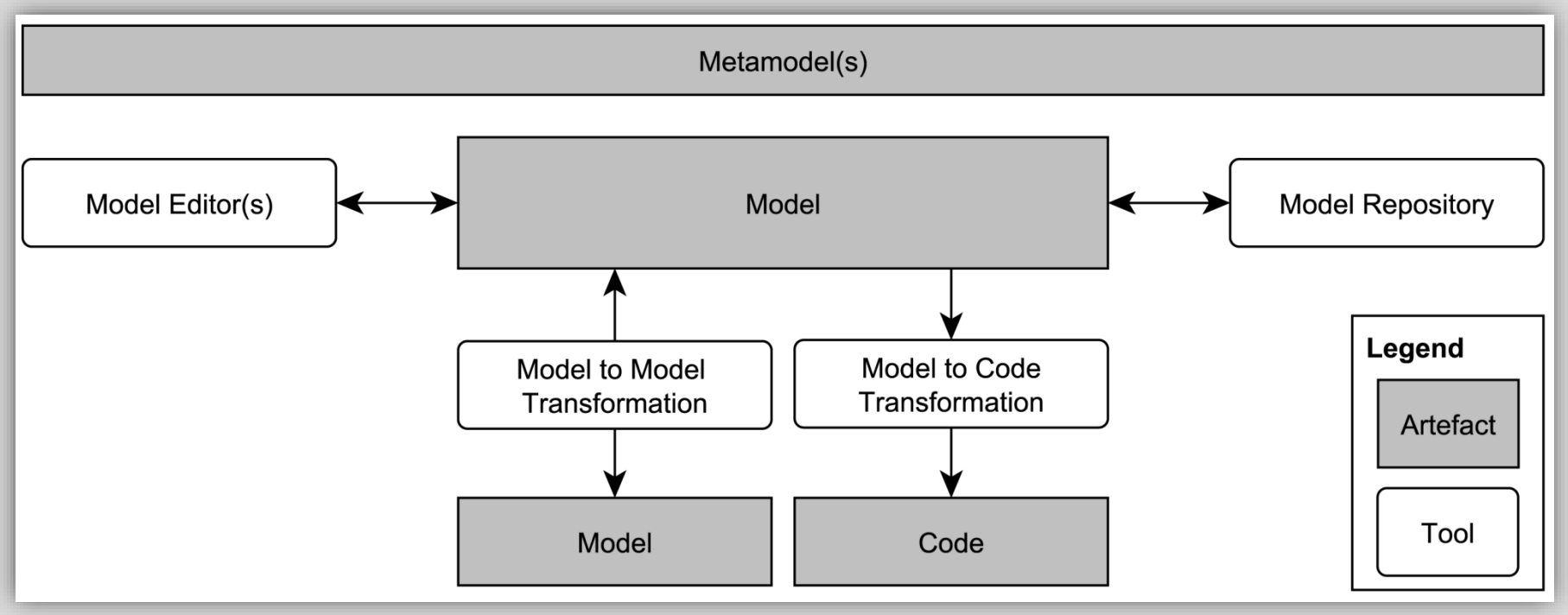
Abstraction + Automation + Analysis

Model-Driven Engineering

Over the last decades many MDE technologies have been conceived to support a wide range of modeling and model management activities



Challenges

A wider adoption of MDE technologies is still an issue*

* Whittle, J., Hutchinson, J., Rouncefield, M., Burden, H., Heldal, R.: **Industrial Adoption of Model-Driven Engineering: Are the Tools Really the Problem?** In: MODELS. Volume 8107 of LNCS. Springer Berlin Heidelberg (2013) 1–17

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Discovery and **reuse** of existing modeling artefacts is very limited

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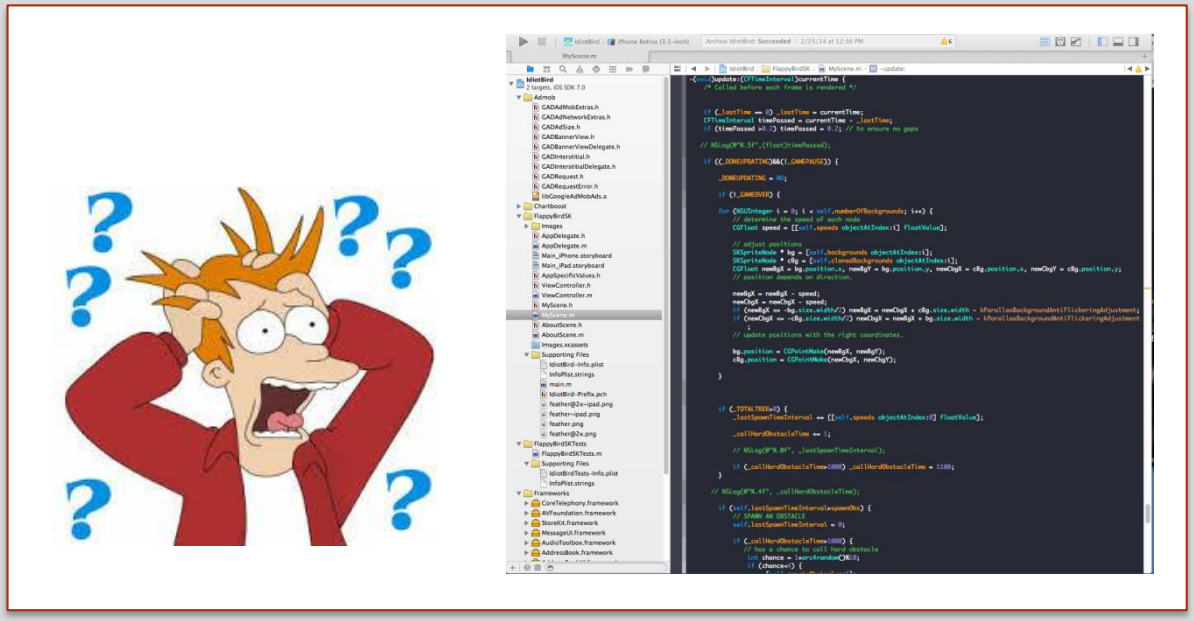

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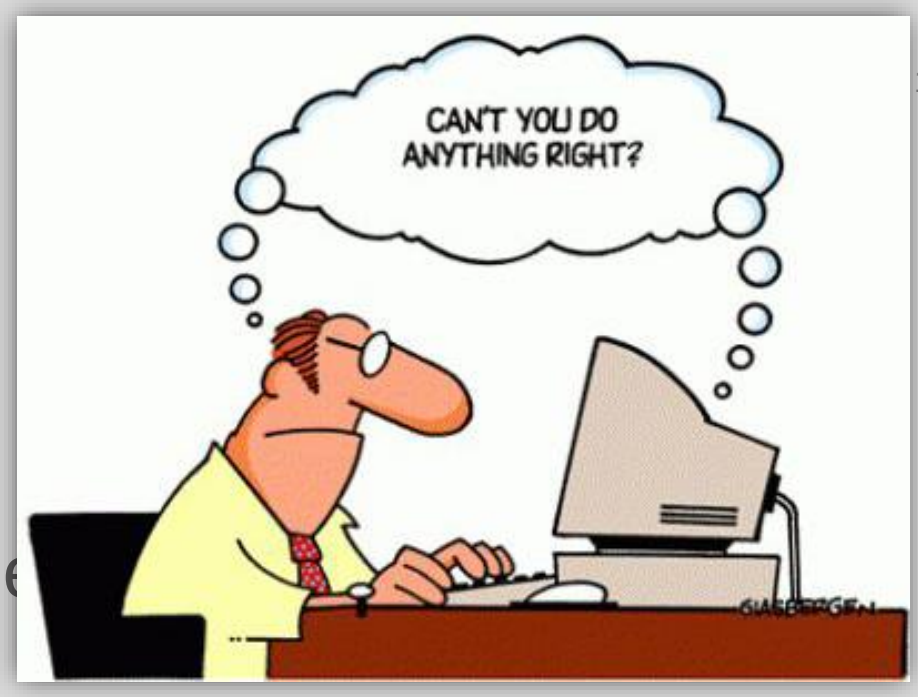
Challenges

A wider adoption of MDE issue



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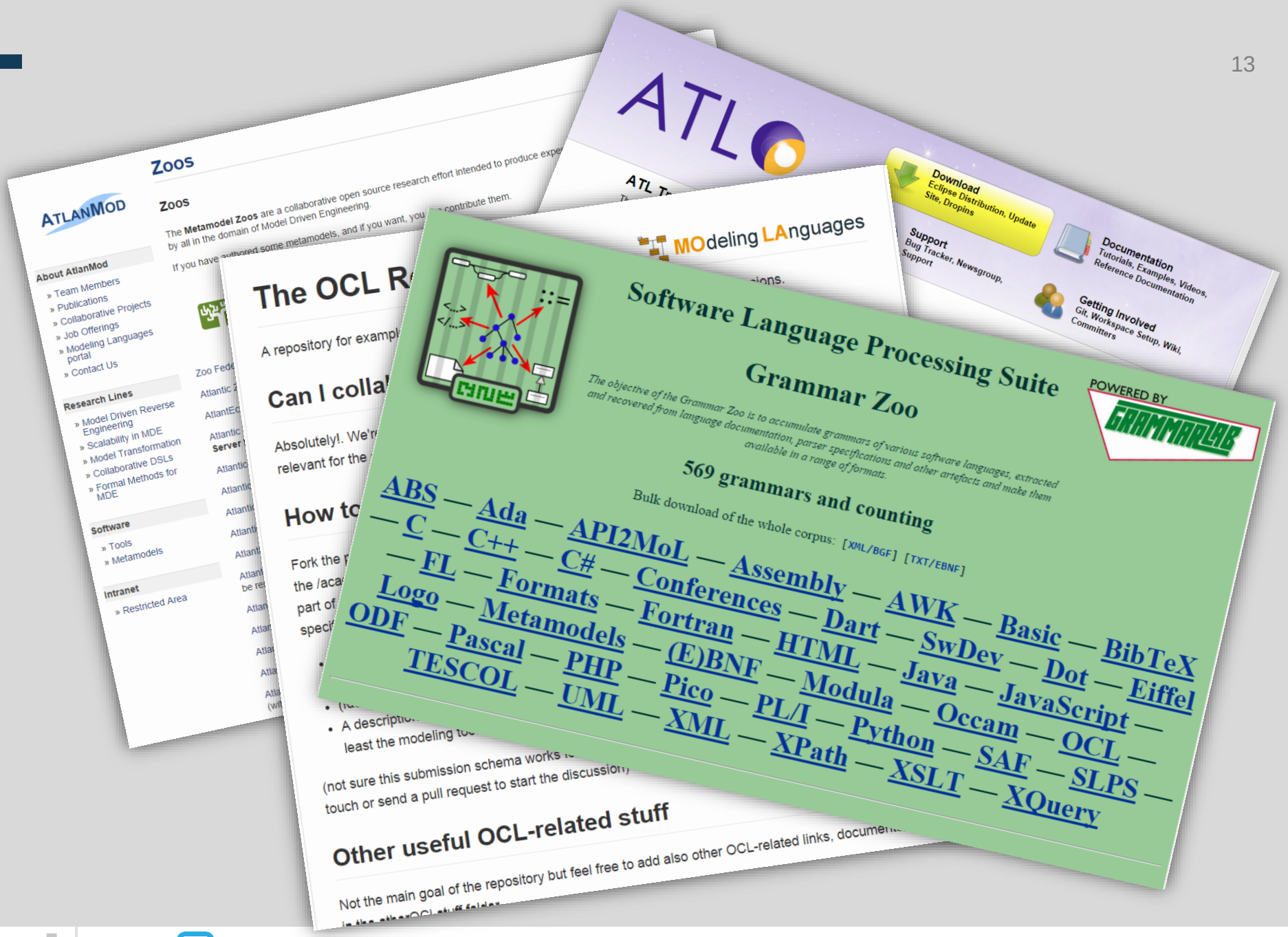
Some tools providing storage features…

	Managed Artefact	Main purpose	Typical deployment scenario
AMOR [5]	Model	Model versioning	Desktop application
Bizycle [6]	Model	Integration of software components	Desktop application
CDO	Model	Storage	Client-Server application
EMFStore [7]	Model	Model versioning	Client-Server application
GME [8]	Model	Storage	Client-Server application
ModelBus [9]	Model	Model versioning	Client-Server application
Morse [10]	Model	Model versioning	Software-as-a-service
ReMoDD [11]	Any	Documentation	Web-based interaction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ATLANMOD
Zoos
The Metamodel Zoos are a collaborative open source research effort intended to produce
by all in the domain of Model Driven Engineering.
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Bug Tracker, Newsgroup, Support
Documentation
Tutorials, Examples, Videos, Reference Documentation
Getting Involved
Git, Workspace Setup, Wiki, Committers
The OCL R
A repository for
Can I colla
Absolutely!. We're
relevant for the
How to
Fork the
the /aca
part of
Other useful OCL-related stuff
MOdeling LAnguages
Software Language Processing Suite
Grammar Zoo
The objective of the Grammar Zoo is to accumulate grammars of various software languages, extracted and recovered from language documentation, parser specifications and other artefacts and make them available in a range of formats.
POWERED BY GRAMMARLAB
569 grammars and counting
Bulk download of the whole corpus: [XML/BGF] [TXT/EBNF]
ABS — Ada — API2MoL — Assembly — AWK — Basic — BibTeX — C — C++ — C# — Conferences — Dart — SwDev — Dot — Eiffel — FL — Formats — Fortran — HTML — Java — JavaScript — Logo — Metamodels — (E)BNF — Modula — Occam — OCL — ODF — Pascal — PHP — Pico — PL/I — Python — SAF — SLPS — TESCOL — UML — XML — XPath — XSLT — XQuery

…we need more

An extensible platform that permits to

- store and manage any kind of modeling artefacts and tools
- use model management tools as software as a service
  - Modeling as a Service (MaaS) initiative*

*Hugo Bruneliere, Jordi Cabot and Frédéric Jouault, **Combining Model-Driven Engineering and Cloud Computing**. MDA4ServiceCloud'10 (ECMFA 2010)

MDEForge

Advanced model management as-a-service

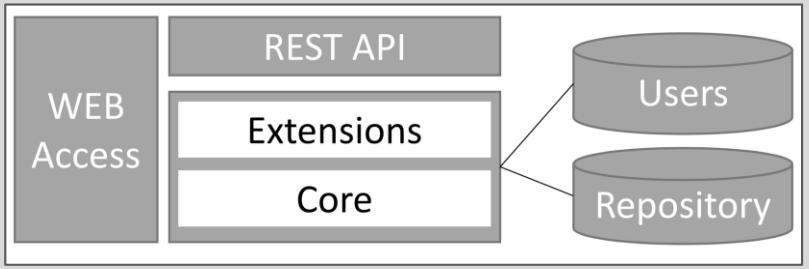
- most functionalities are restful

Collaborative modeling platform

- workspace/project/team management
- artifact sharing mechanism

Open architecture to accommodate third-party functionalities

- **core components**
- **extensions**



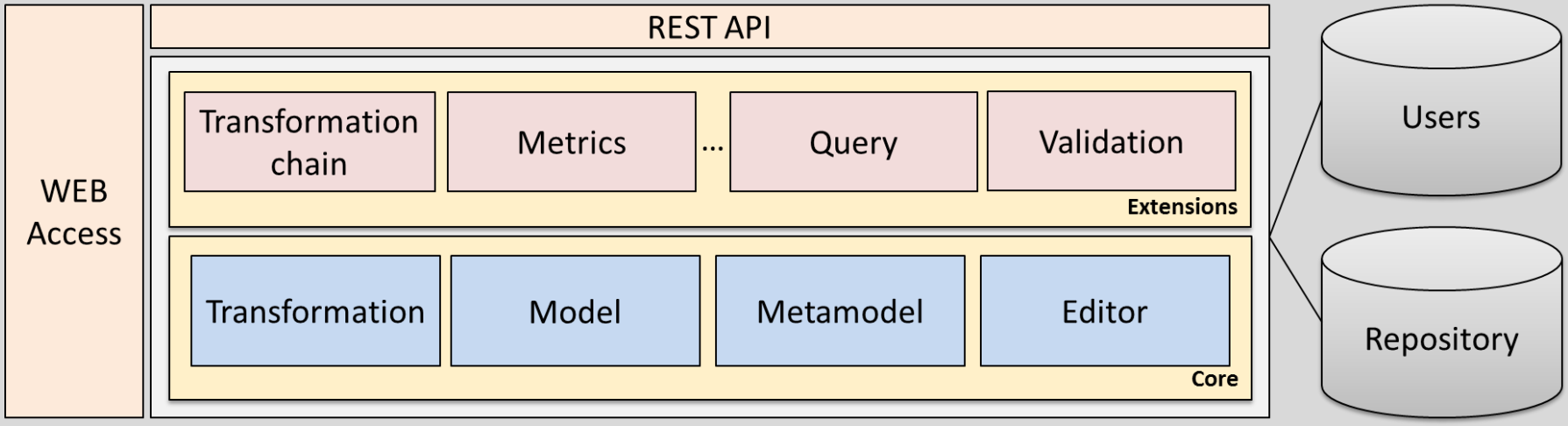
MDEForge users

Developers of modeling artifacts: communities of users that might want to share their tools and enable their adoption and refinement by other users

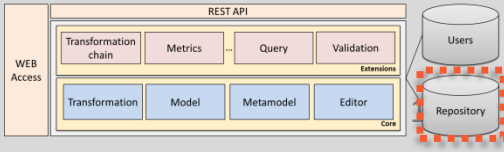
Developers of MDEForge extensions: to contribute by proposing new extensions to be included in the platform

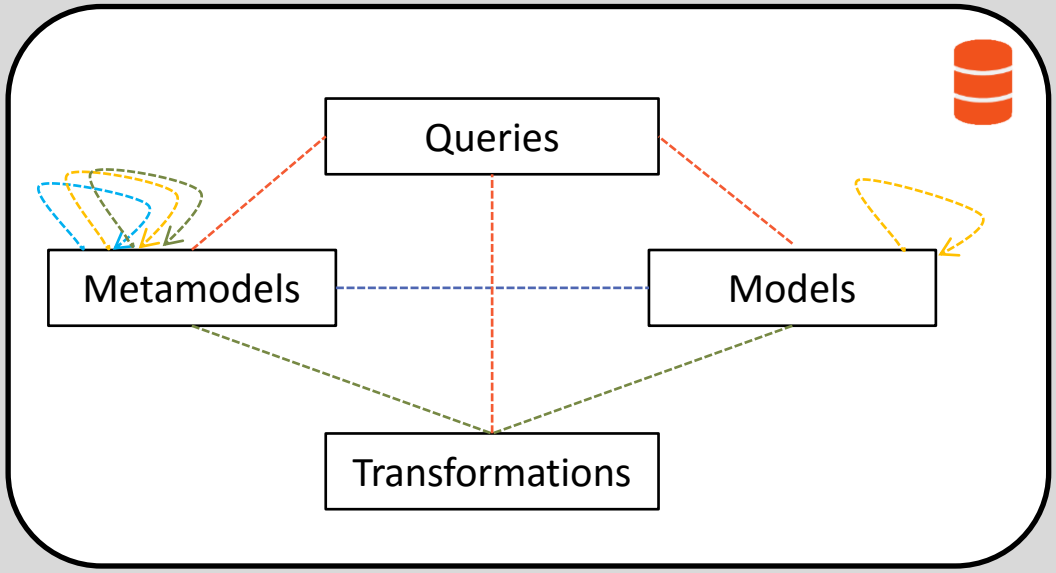
End-users: to search and use (meta)models, transformations, and editors available in the repository

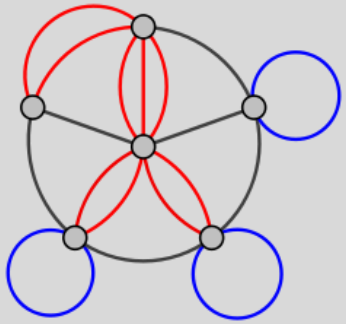
MDEForge architecture



The MDEForge Repository





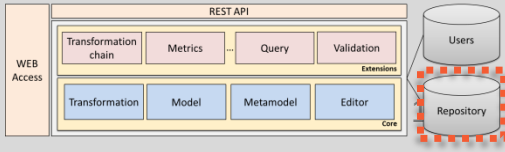


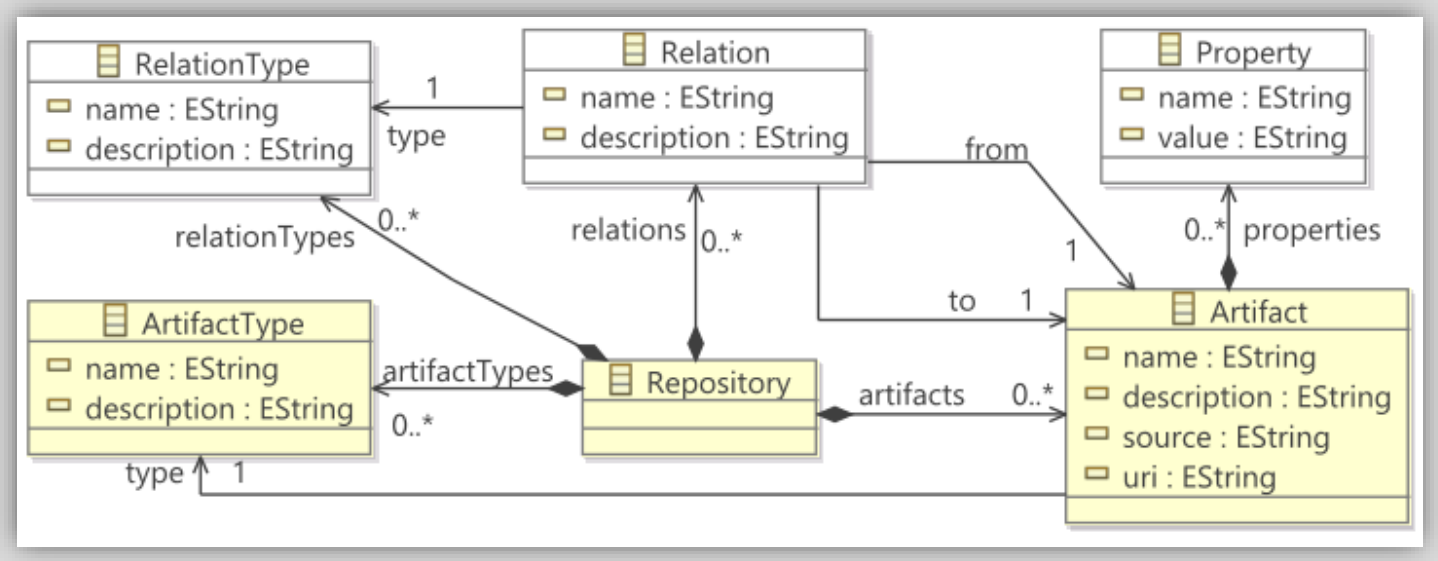
Explicit management of relations

- conformTo, domainConformTo, similarity, difference, evaluatedOn…

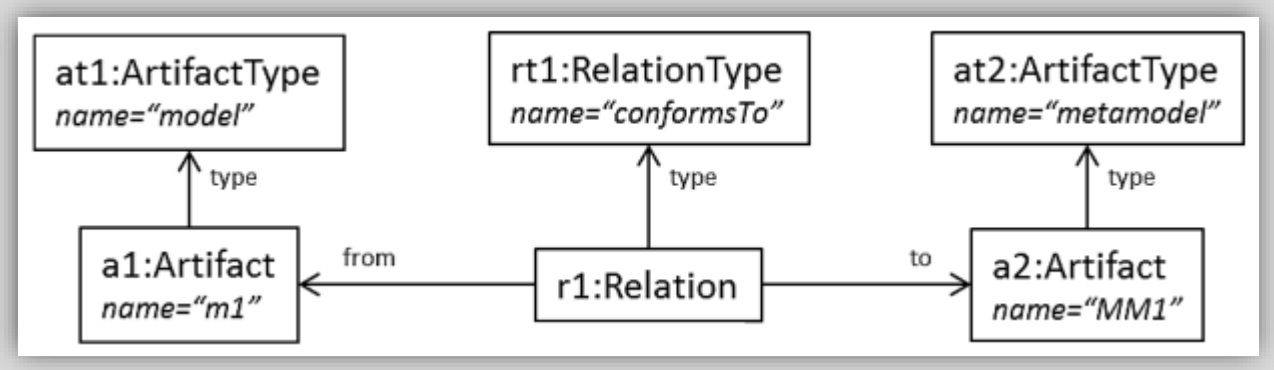
Megamodel representing and organizing the content of the repository

The MDEForge Repository



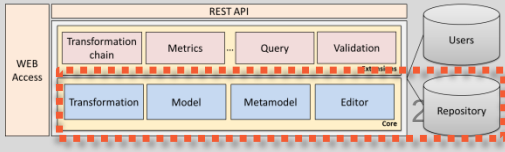


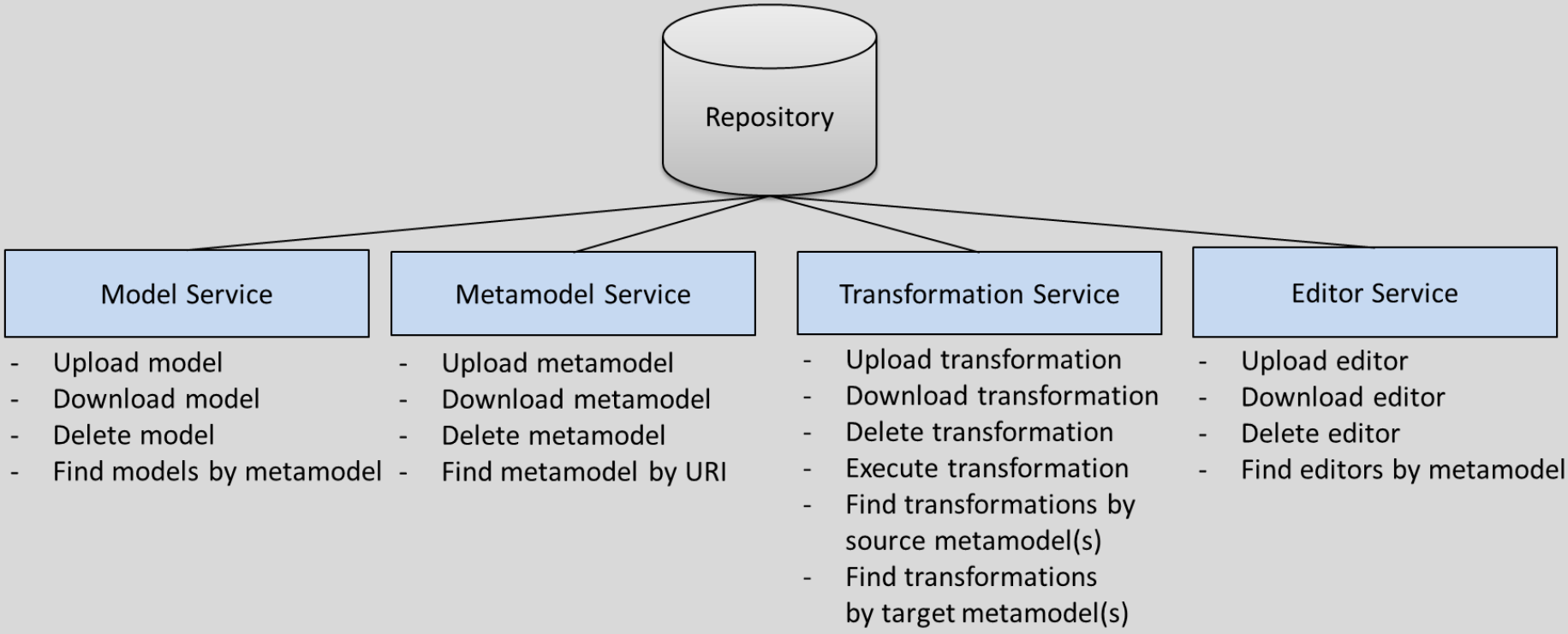
Repository metamodel fragment



Simple repository content

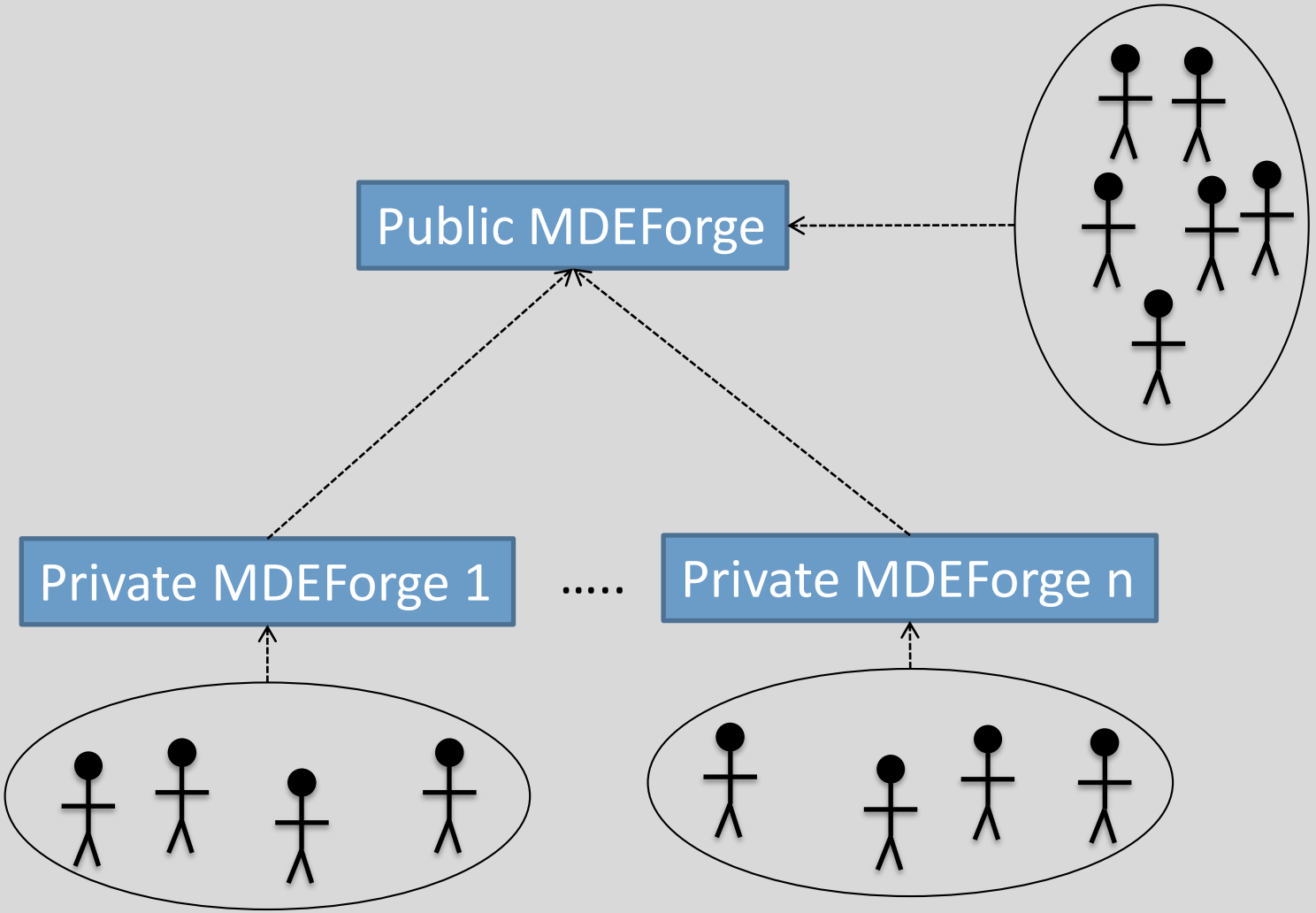
The MDEForge Core





DEMO

Public and Private MDEForge installations



Conclusion and future work

- Lack of reusability during model-driven engineering (e.g., creating a DSL from scratch)
- Need to install and configure desktop-based applications to perform MDE development activities

- MDEForge has been proposed as an extensible modeling platform supporting the creation of a community-based modeling repository
  - core services that can be extended and all of them are remotely available as software as a service
  - users are not overwhelmed with intricate and error-prone installation and configuration procedures

Conclusion and future work

We want to:

- investigate more the support for advanced queries of the repository
- manage public and private installations of the MDEForge
- investigate issues that are typical in Cloud computing, e.g., scalability of the platform, and workload management
- deal with licensing issues

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