Kermeta Day 2009
Model Driven Engineering for Real

Prof. Jean-Marc Jézéquel

Triskell project-team

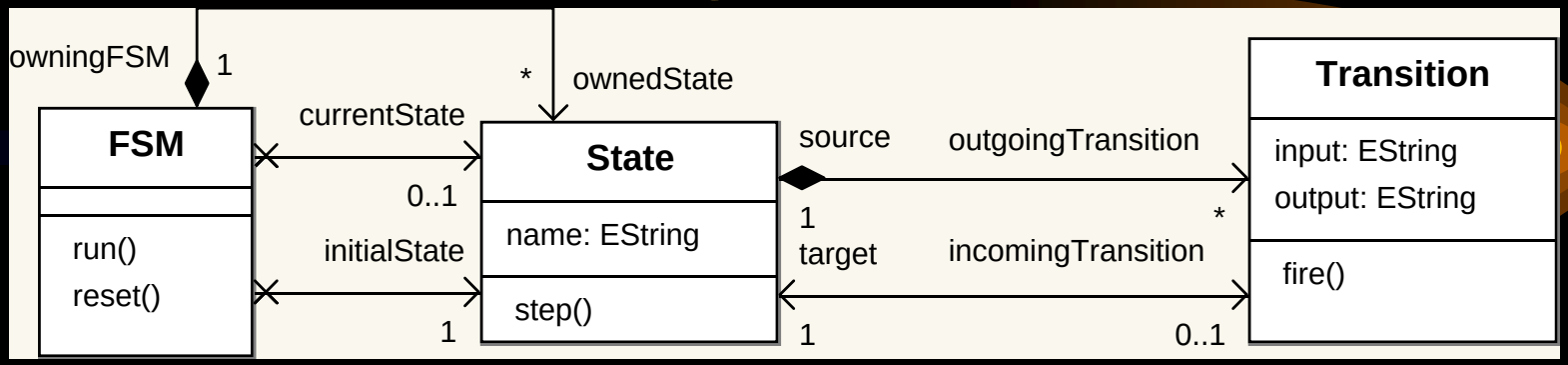
jezequel@irisa.fr

http://www.irisa.fr/prive/jezequel

Kernel Meta-modeling Language: Kermeta

- Kermeta is a Model-Oriented Language
  - based on an AO/OO executable meta-modeling paradigm
    - Static typing, generics, functions objects, reflection…
  - First language where models are first class entities
    - Allows interesting questions to be asked: e.g.; what is the type of a model?
- Executable meta-modeling allows:
  - specification of abstract syntax, static semantic (OCL) and dynamic semantics, connection to the concrete syntax.
  - model and meta-model simulation and prototyping
  - model transformation, design level aspect weaving

Kermeta: Breathing life into Meta-Models



- *// MyKermetaProgram.kmt*
- *// An E-MOF metamodel is an OO program that does nothing*
  require "StateMachine.ecore" *// to import it in Kermeta*
- *// Kermeta lets you weave in* **aspects**
  // Contracts (OCL WFR)
  require "StaticSemantics.ocl"
  // Method bodies (Dynamic semantics)
  require "DynamicSemantics.kmt"
  // Transformations

```
class Minimizer {
   operation minimize (source: FSM):FSM {…}
}
```

```
Context FSM
inv: ownedState->forAll(s1,s2|
s1.name=s2.name implies s1=s2)
```

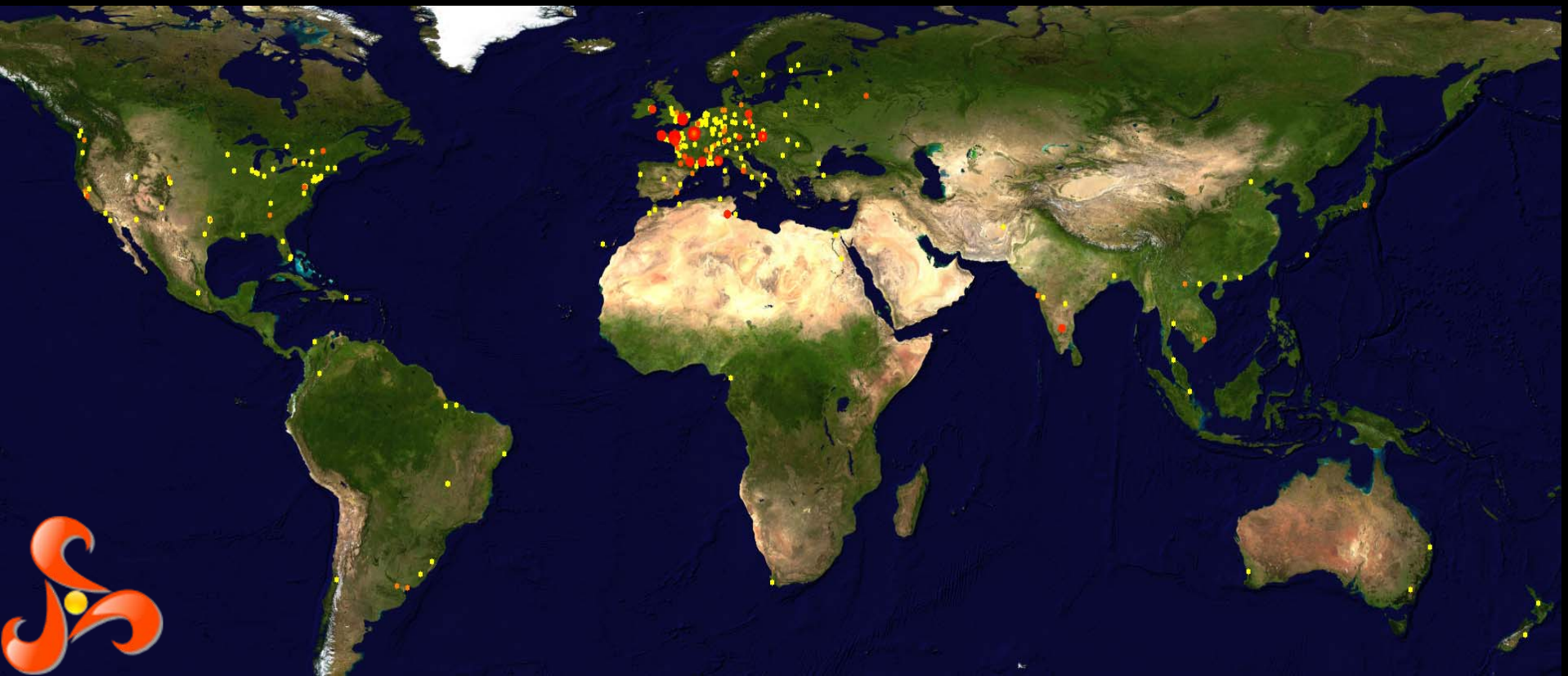
```
aspect class FSM {
   operation reset() : Void {
         currentState := initialState
}}
```

OO Frameworks developped with Kermeta

- Many Model Development Kits
  - Aka Kermeta code « tooling » specific MM
    - UML2, EMOF, Java5, Kermeta, Kompose…
- General purpose Tools
  - Model Typing/Generic Refectorings/Metrics
  - AOM/Composition tools
    - Kompose (with R. France, CSU), SmartAdapters…
- A Kermeta compiler is available to deliver JARs without any dependency with Kermeta

Statistics

- 9000 download since 2006
- More than 300 articles using or citing Kermeta (cf. google.scholar)



Program

- 9h00 - 9h30 Introduction by Jean-Marc Jézéquel
  9h30 - 10h30 Invited Talk by Xavier Blanc
  10h30 - 11h00 *COFFEE BREAK*
  11h00 - 11h30 Using Kermeta in Production Mode, Olivier Barais
  11h30 - 12h00 UML To Ecore Translation, Muhammad-Ali Memon

  12h00 - 14h00 *LUNCH*

  14h00 - 14h30 Kermeta in Compiled Mode, Cyril Faucher
  14h30 - 15h00 Singleton dans Kermeta, Didier Vojtisek
  15h30 - 16h00 *COFFEE BREAK*
  16h00 - 16h30 Active Transformation within Kermeta, Olivier Beaudoux
  16h30 - 17h00 Traceability@Runtime, Cyril Faucher
  17h00 - 17h30 Applying the Model Type : Refactoring, Vincent Mahé
  17h30 - 18h00 *CLOSING*