

Econet Project Nantes' Workshop

Common Metamodel

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COLOSS

Econet Metamodels

- Motivations
- History and starting points
- Versions
- CCMM v1.0
- Discussions
- Validation

Motivations

- Several concrete metamodels

- SOFA, Kmelia, KADL
- Fractal, Tracta, Corba...

- Generic re-engineering tool

- Model independent
- Subset of models concepts
- Metamodel API and checking

☞ **common component metamodel**

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History and starting points 1/3

1. Prague Workshop Report

- SOFA metamodel (parts) p. 31, variant p. 52
- Mapping concepts (component elements, annotations) p. 37
- Model comparison p. 38-39
- Common metamodel p. 39
- Annotations p. 40-41, p. 47-48

History and starting points 2/3

2. Concrete Meta-models

- SOFA metamodel
- Kmelia metamodel

3. Abstract Meta-models

- CMM metamodel PA – november 2007
- CMM metamodel PH from another project – march 2008
- CCMM_1.0_ecore VP – march 2008

History and starting points 3/3

4. Normative or specific model

- Ecore from EMF project
- OMG UML 2.1 (UML 2.0, UML 1.5)

☞ Several sources of inspiration

Econet Metamodels

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Versions

Common Meta-models

SVN repository

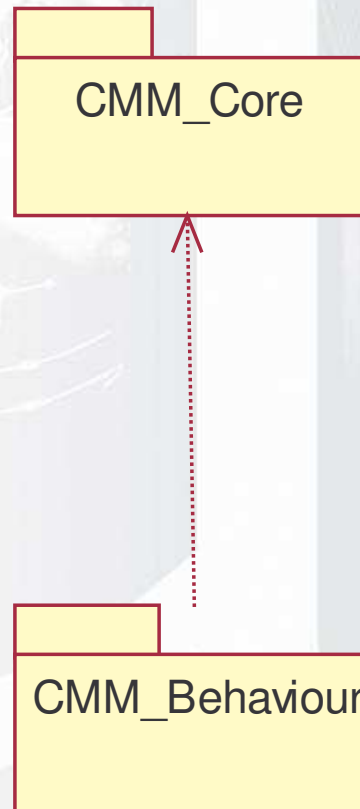
- CMM 1.0 PA – november 2007
- CCMM_1.0_ecore VP – march 2008
- CMM metamodel PH from another project – march 2008
- CMMM 1.0 PA – march 2008

CMM v1.0

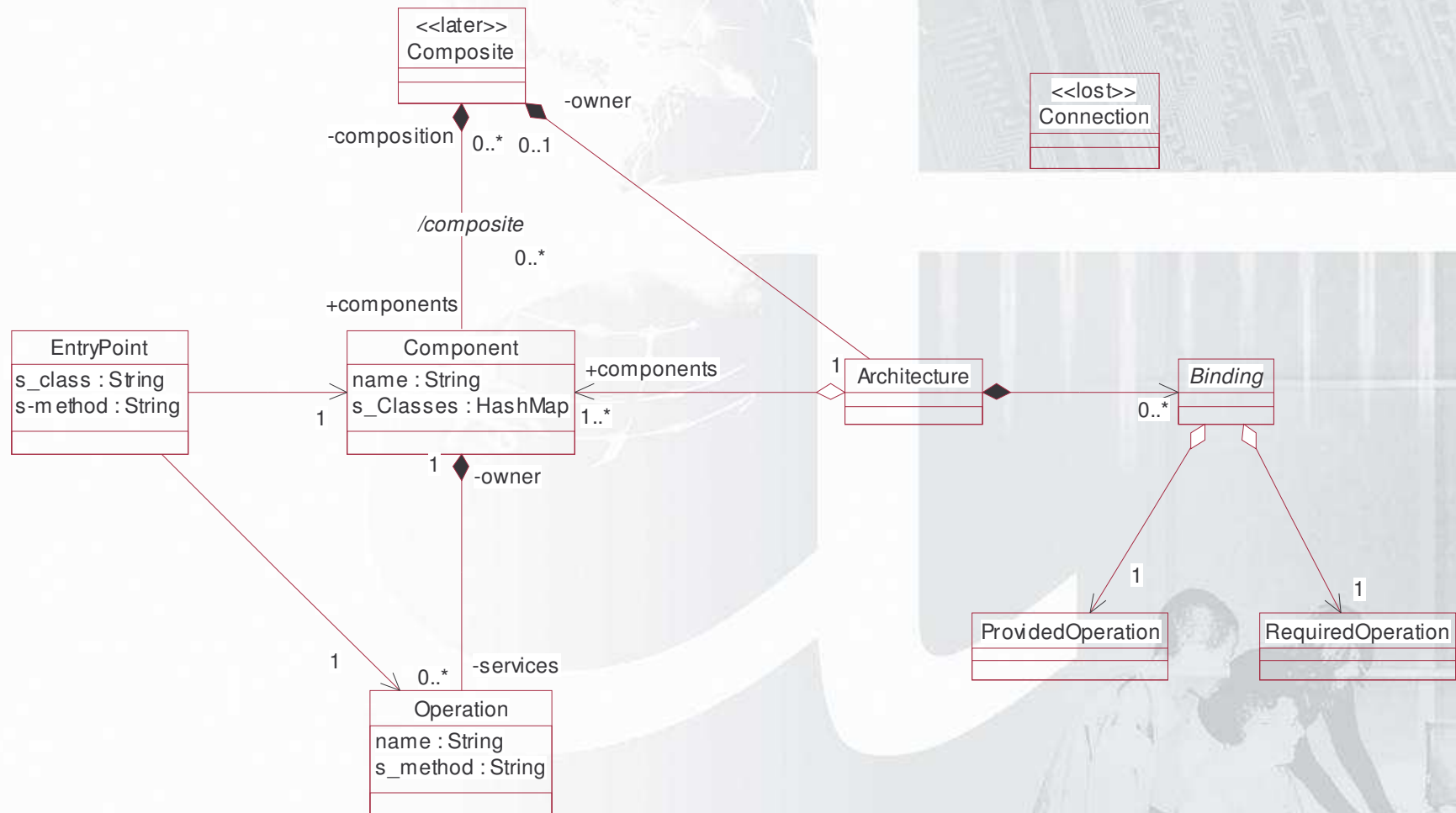
November 2007

- ✦ Separation core/behaviour
- ✦ Simple
- ✦ Usual component terminology
- ✦ Inspired from Prague's Workshop
- ✦ Used in a prototype for Process B
- Largely inspired from Kmelia
- Few constraints
- No instances

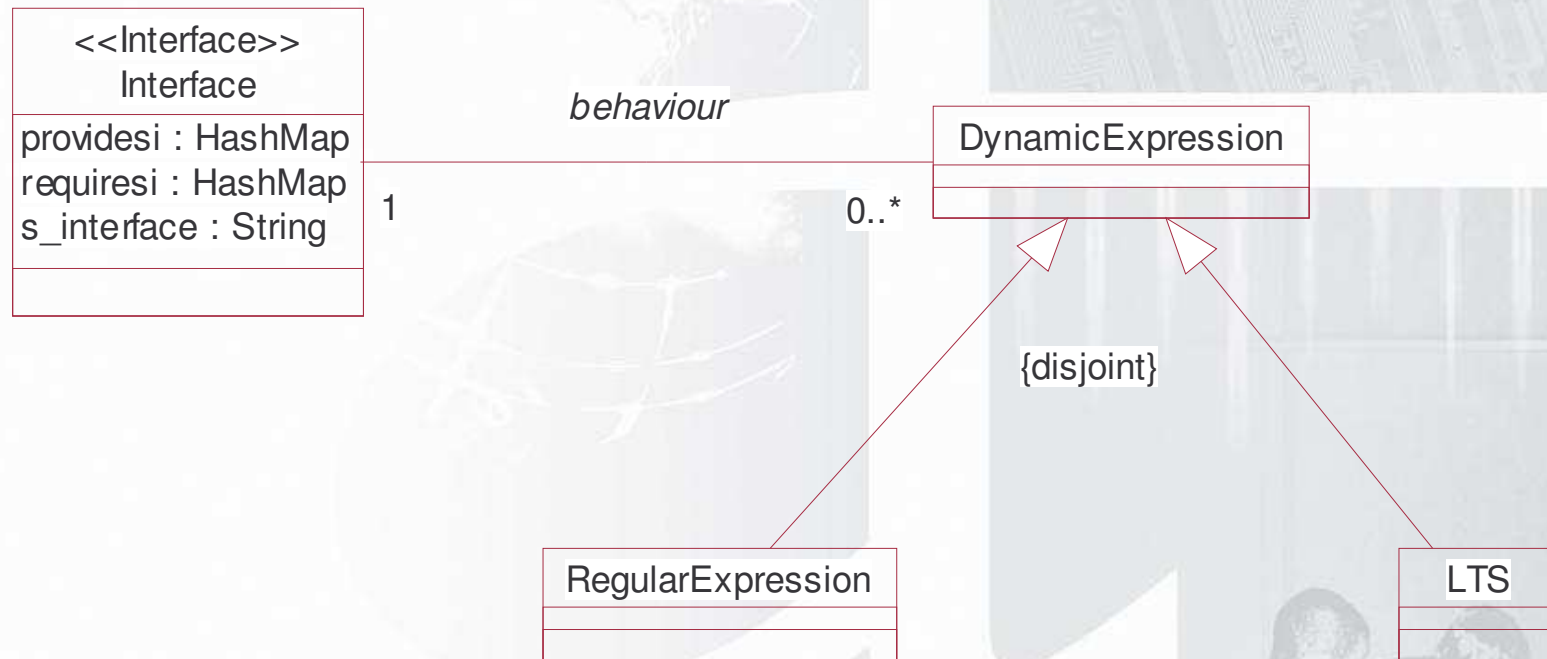
CMM v1.0 (contd.)



CMM v1.0 Core (architecture)



CMM v1.0 Behaviour

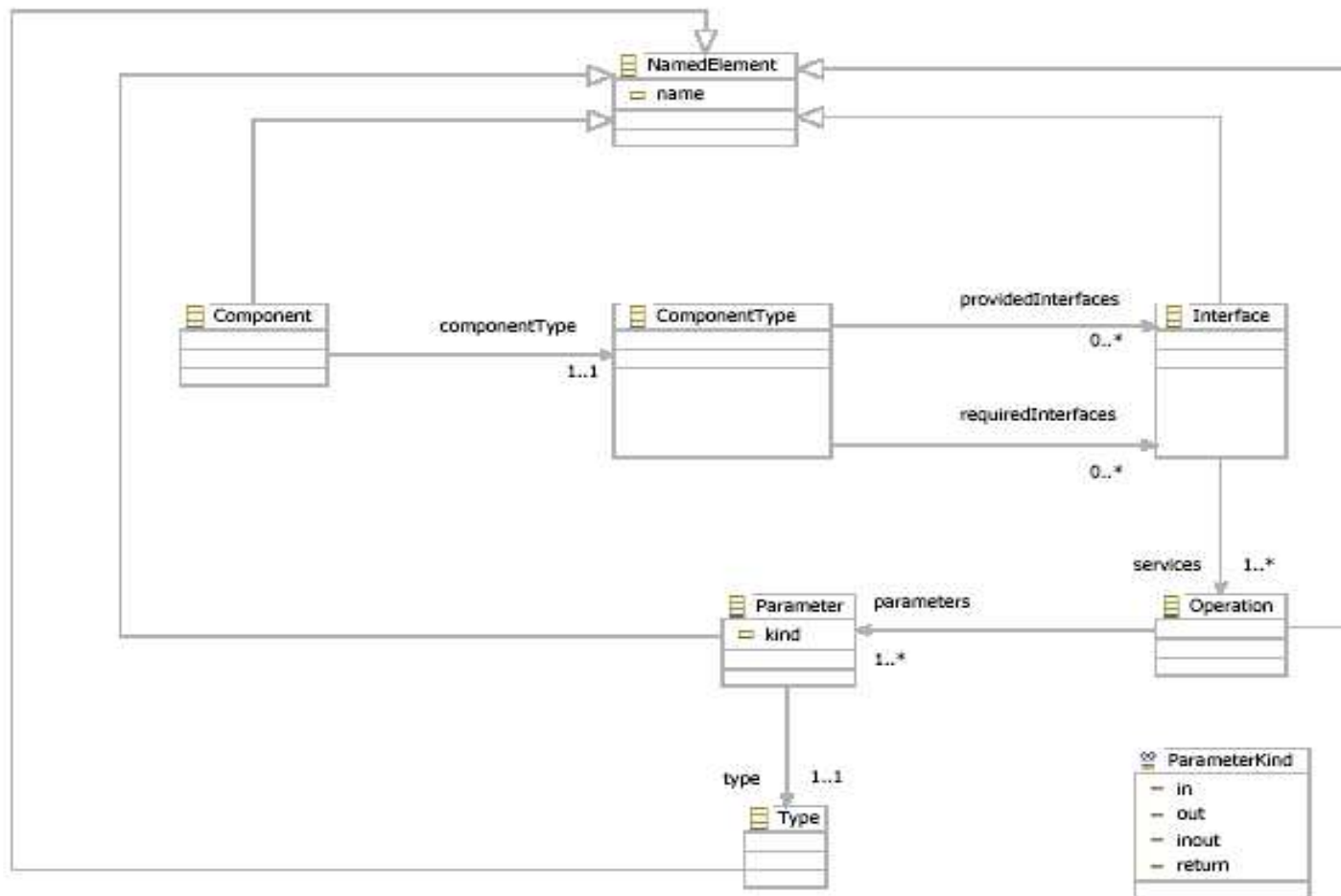


CCMM_1.0_ecore

March 2008

- ✦ Mixin model
- ✦ Ecore
 - Too simple, no architecture
 - No constraints
 - No description

CCMM 1.0 ecore

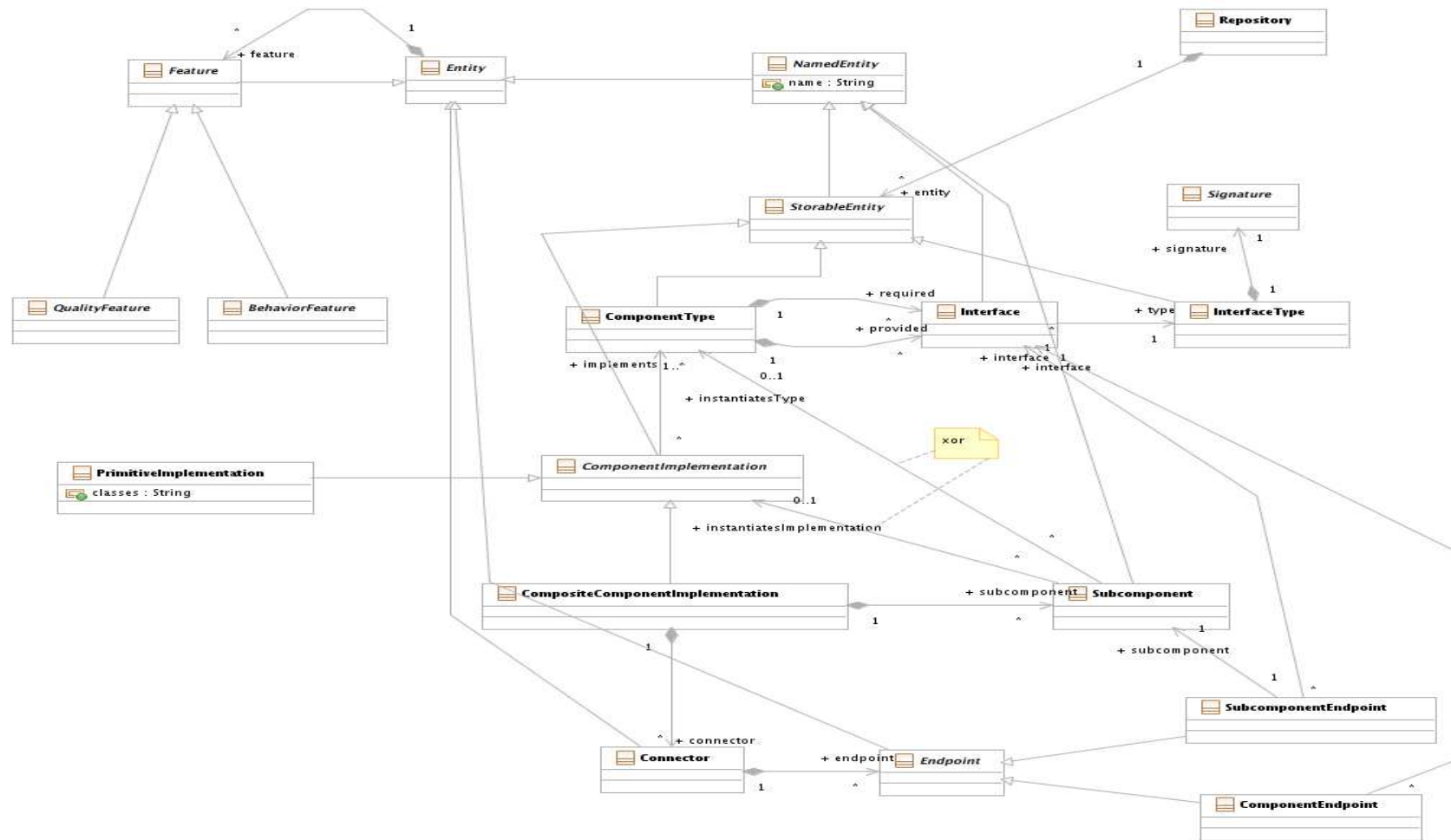


CMM metamodel

March 2008

- ✦ Validated in an existing project
- ✦ Simple and complete
- ✦ Instances, model management
- ✦ Inspired from Sofa
- Too specialised
- Unusual component terminology
- Few constraints
- No separation of concerns

CMM metamodel



Econet Metamodels

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- **CCMM v1.0**
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CCMM v1.0

- Initiated in april 2008
- A new attempt for a common metamodel
 - Original
 - Broader (other source of inspiration)
 - Customizable
- A draft version
 - To be discussed, updated, completed and validated

CCMM v1.0 (contd.)

- Layered Model
 - Abstract the commonalities
 - Core and extensions
- Separation of concerns
 - Core Component Model
 - Behaviour Modelling
 - Instance Management
 - Model Management and Annotations
- Modelling Process
 - Generalisation: various concepts, notations
 - Constraints, comments, examples

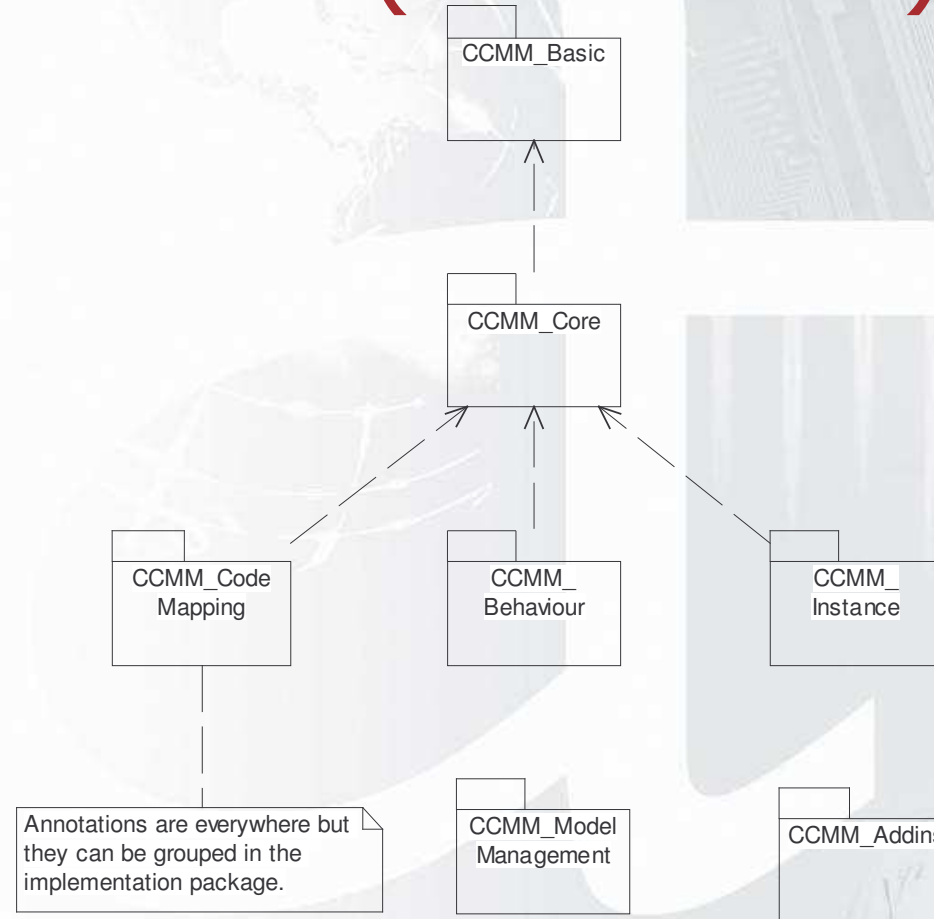
CCMM v1.0 (contd.)

- Big model ?
 - Implementation issues
 - The core part
 - Extend existing frameworks (UML, MOF, Ecore...)
 - Reduced model
 - Layered Implementation
- ☞ **Decide here**

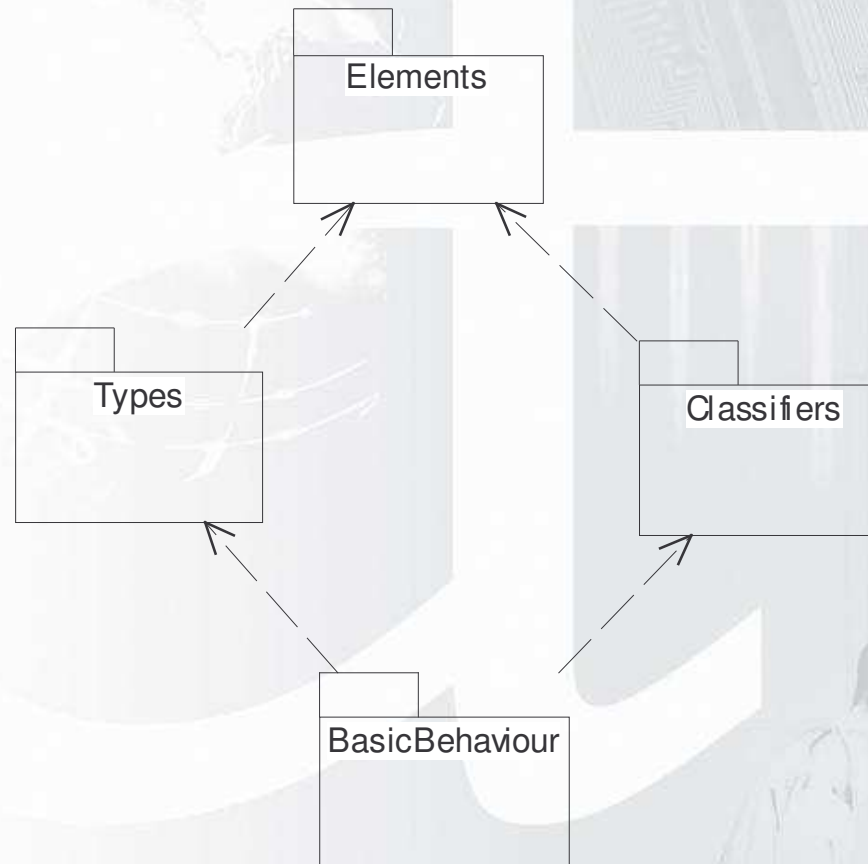
CCMM v1.0 (details)

- Totals:
 - 7/19 Logical Packages
 - 79 Classes
- CCMM_Basic
 - Types
 - Elements
 - Classifiers
 - BasicBehaviour
- CCMM_Core
 - CCMM_Components
 - CCMM_Architecture
 - Annotations
- CCMM_Behaviour
 - CCMM_Behaviour_LTS
 - CCMM_Behaviour_RE
 - CCMM_Behaviour_Basic
- CCMM_Instance
- CCMM_CodeMapping
- CCMM_ModelManagement
- CCMM_Addins

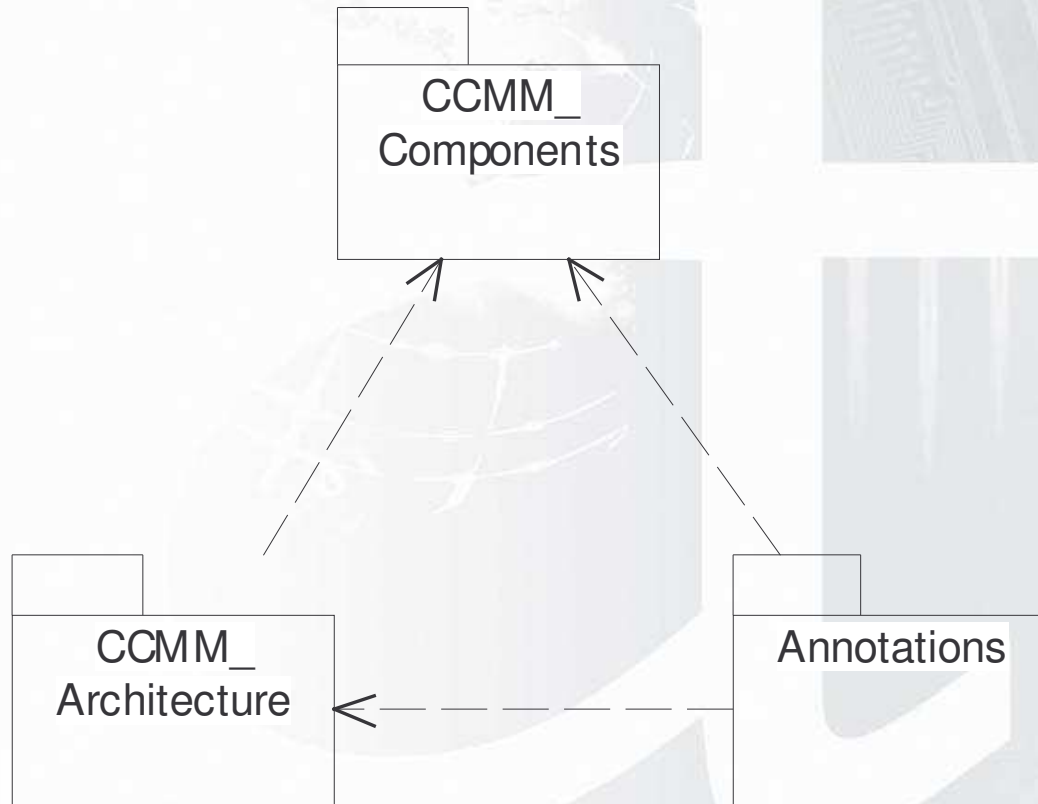
CCMM v1.0 (structure)



CCMM v1.0 (basic)

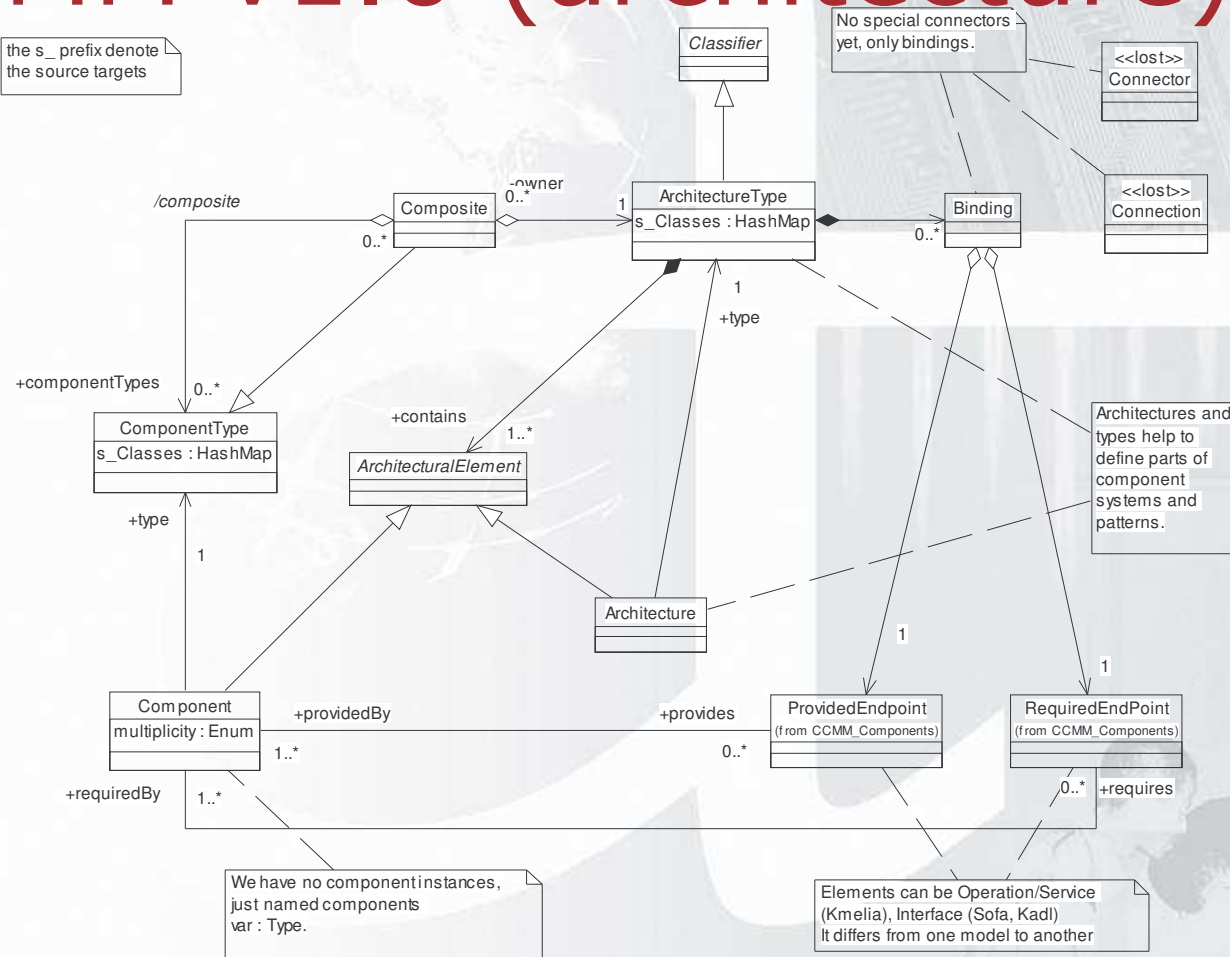


CCMM v1.0 (core)



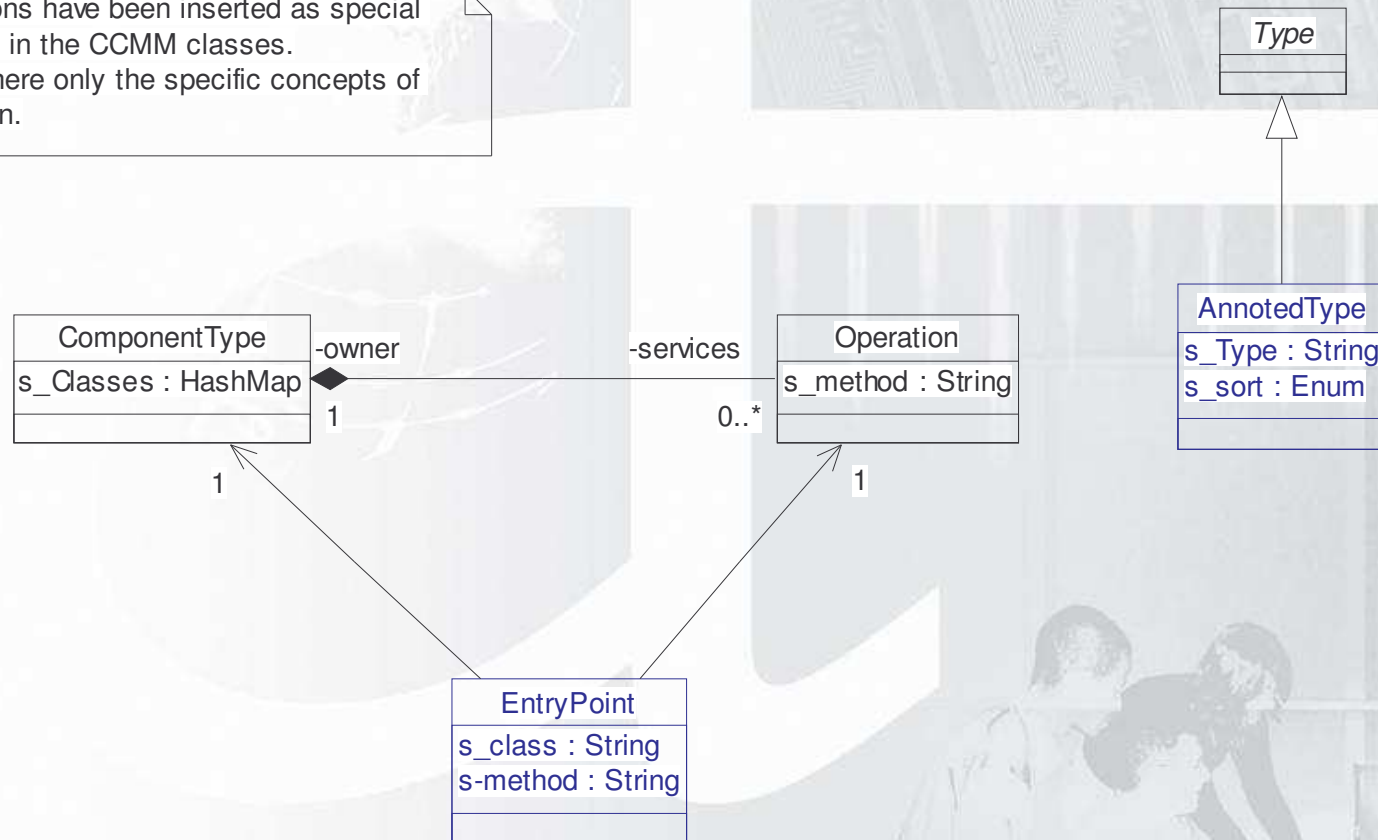
CCMM v1.0 (architecture)

the s_ prefix denote the source targets

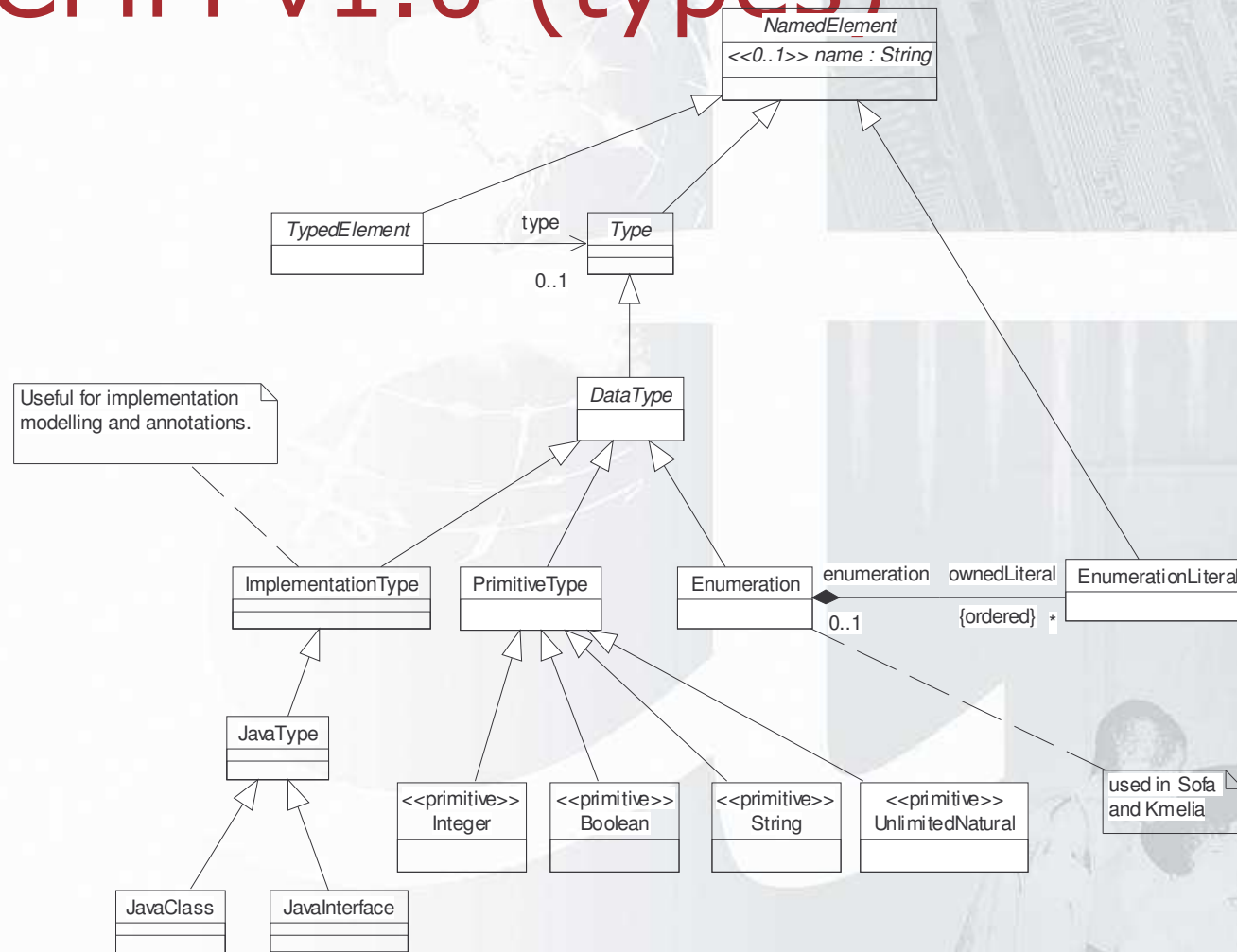


CCMM v1.0 (annotations)

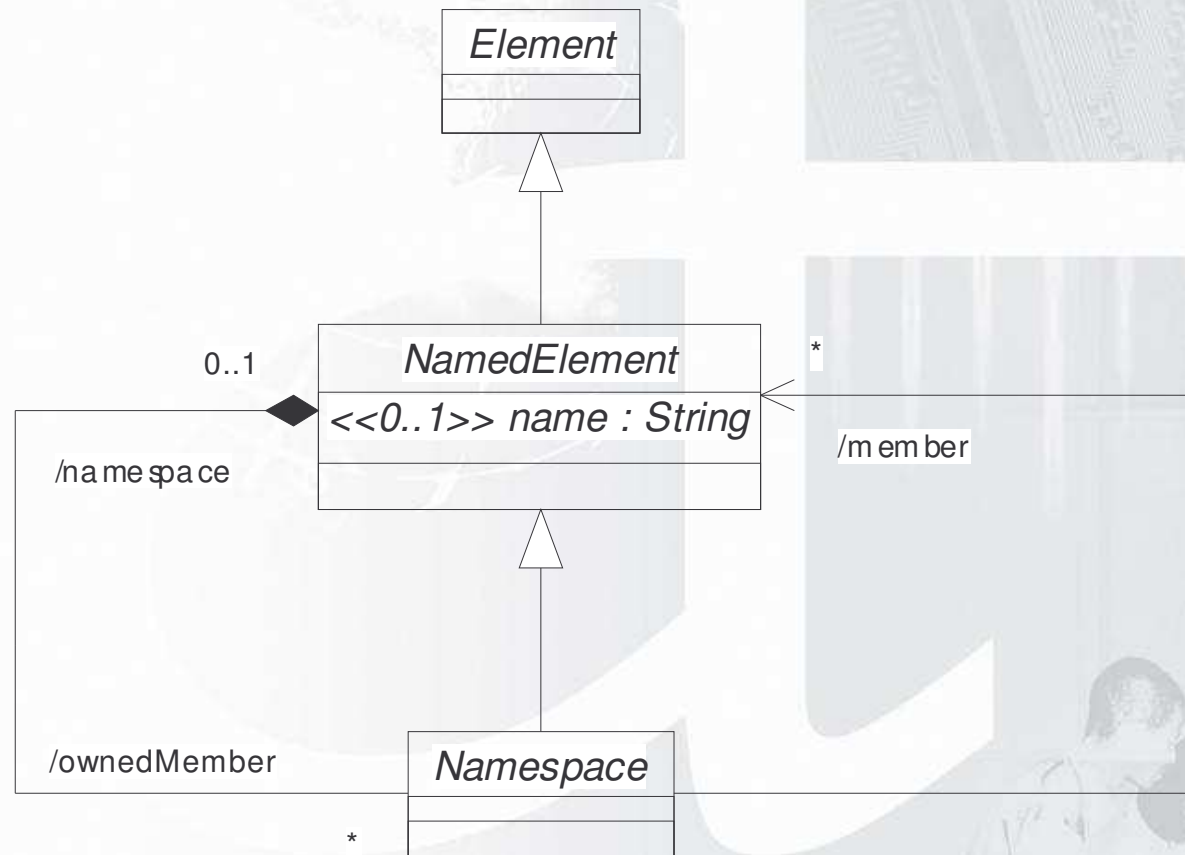
Annotations have been inserted as special attributes in the CCMM classes.
We add here only the specific concepts of annotation.



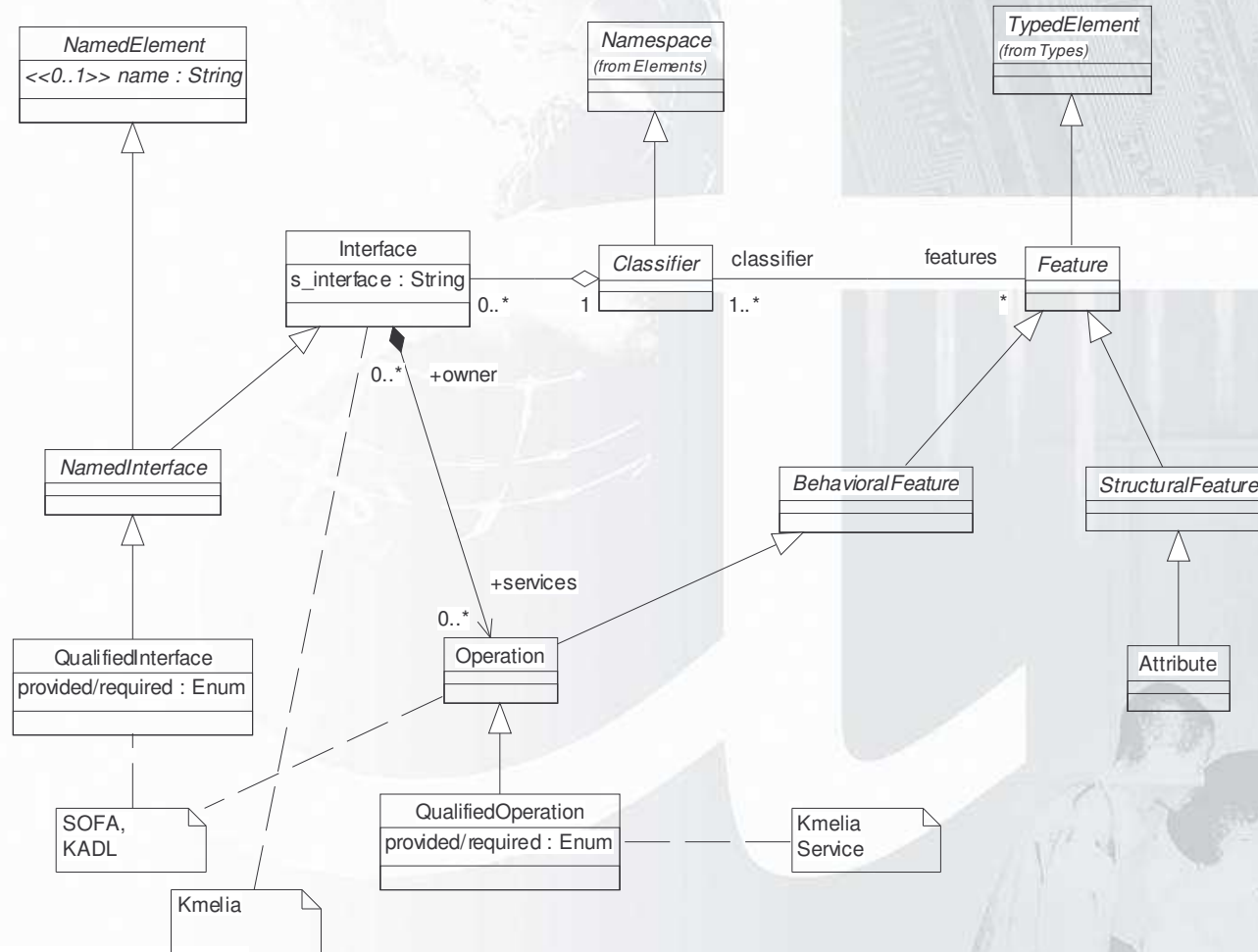
CCMM v1.0 (types)



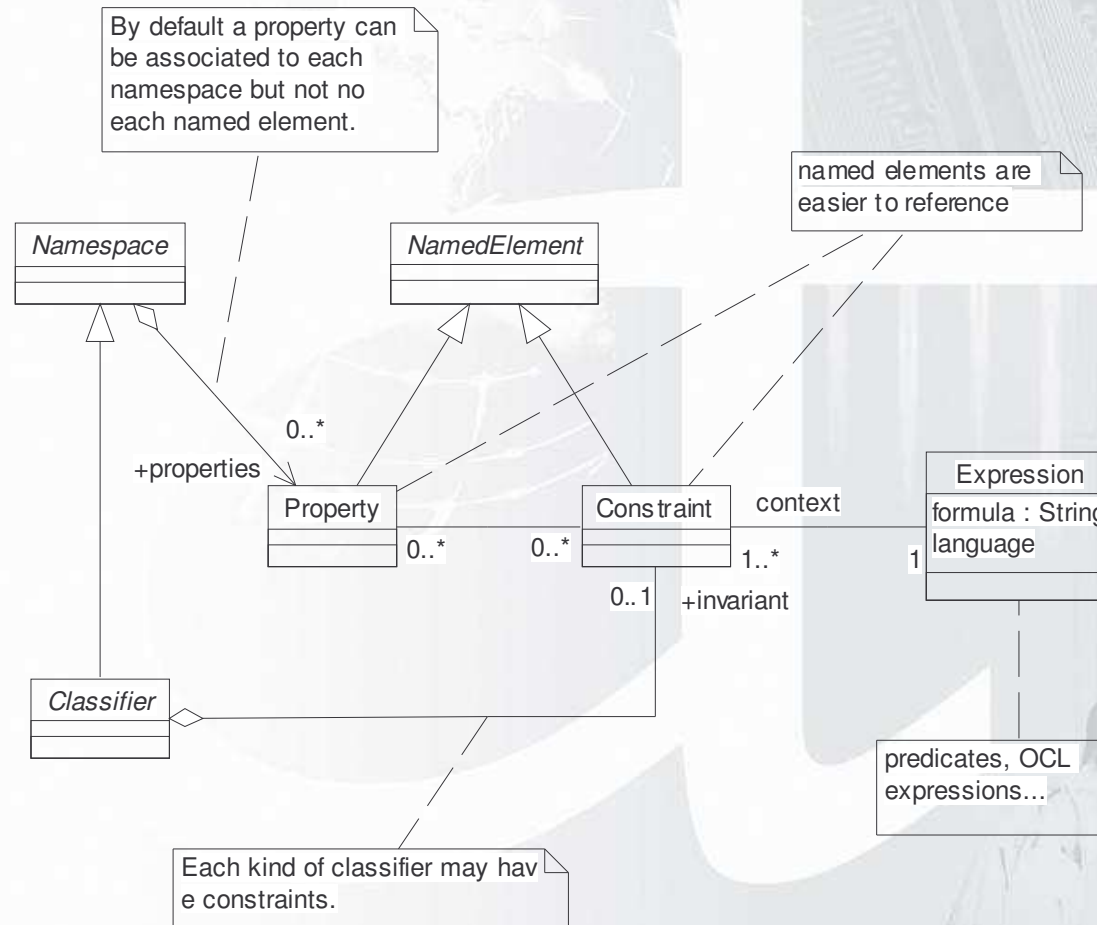
CCMM v1.0 (elements)



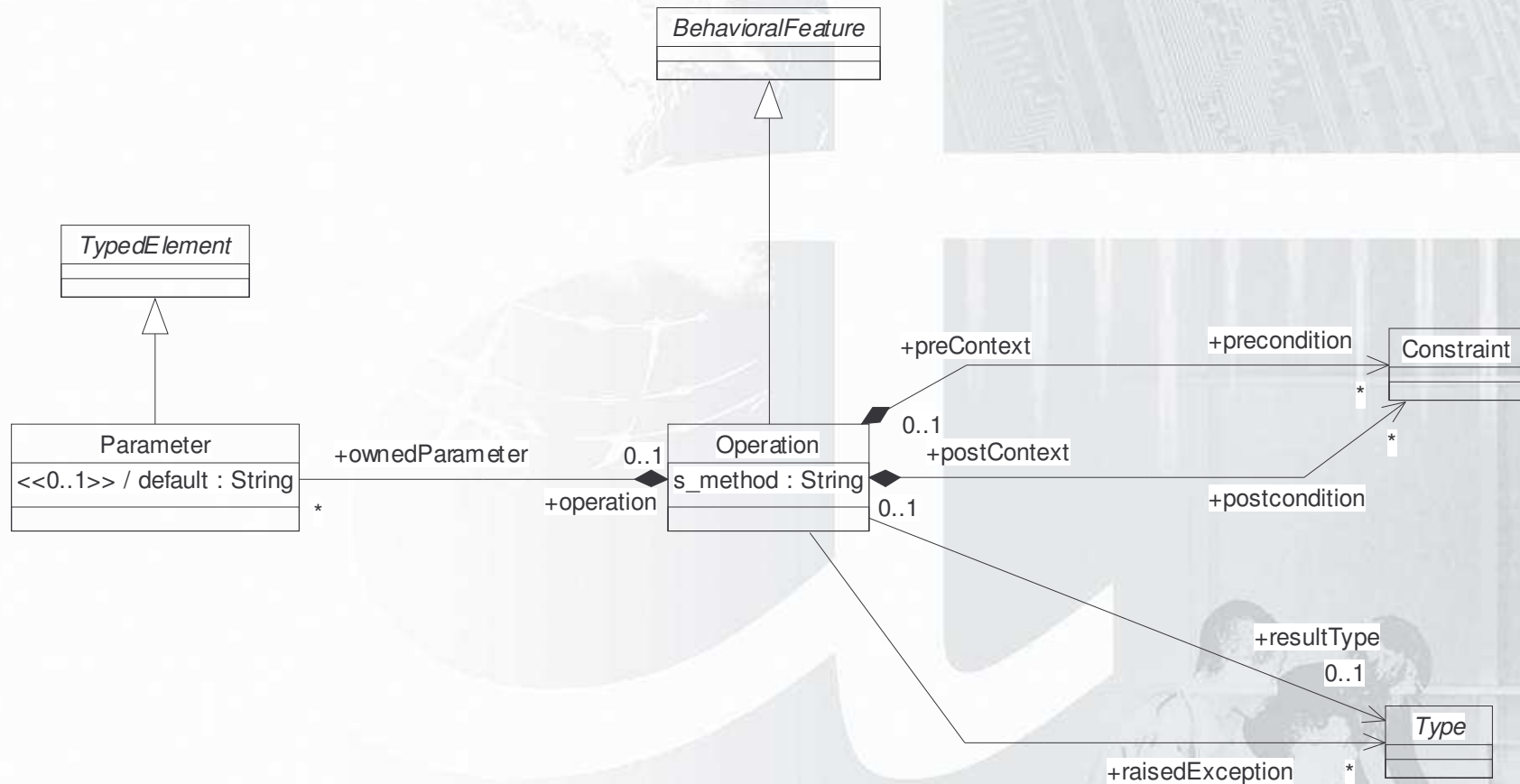
CCMM v1.0 (classifiers)



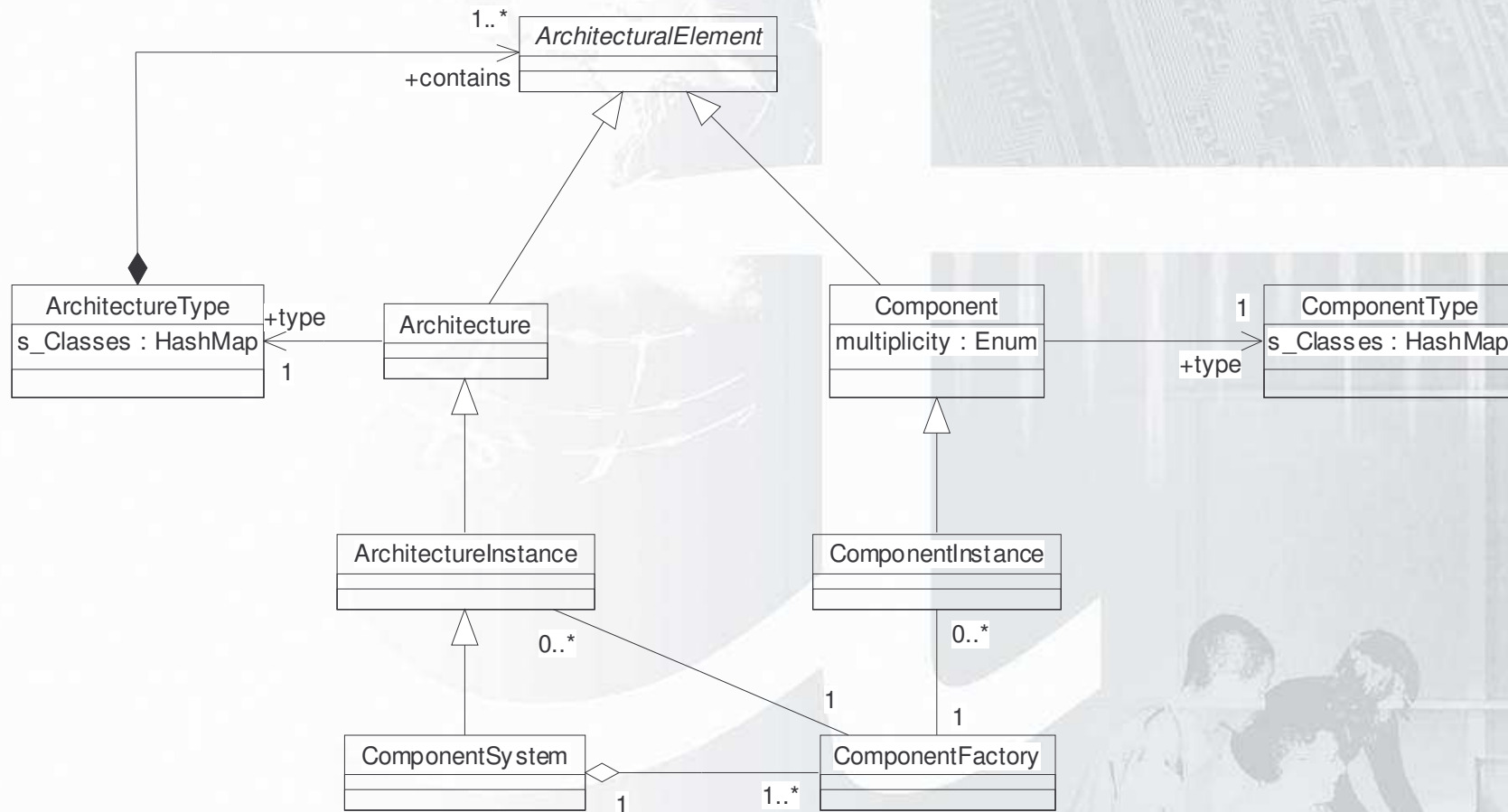
CCMM v1.0 (properties)



CCMM v1.0 (basic behaviour)

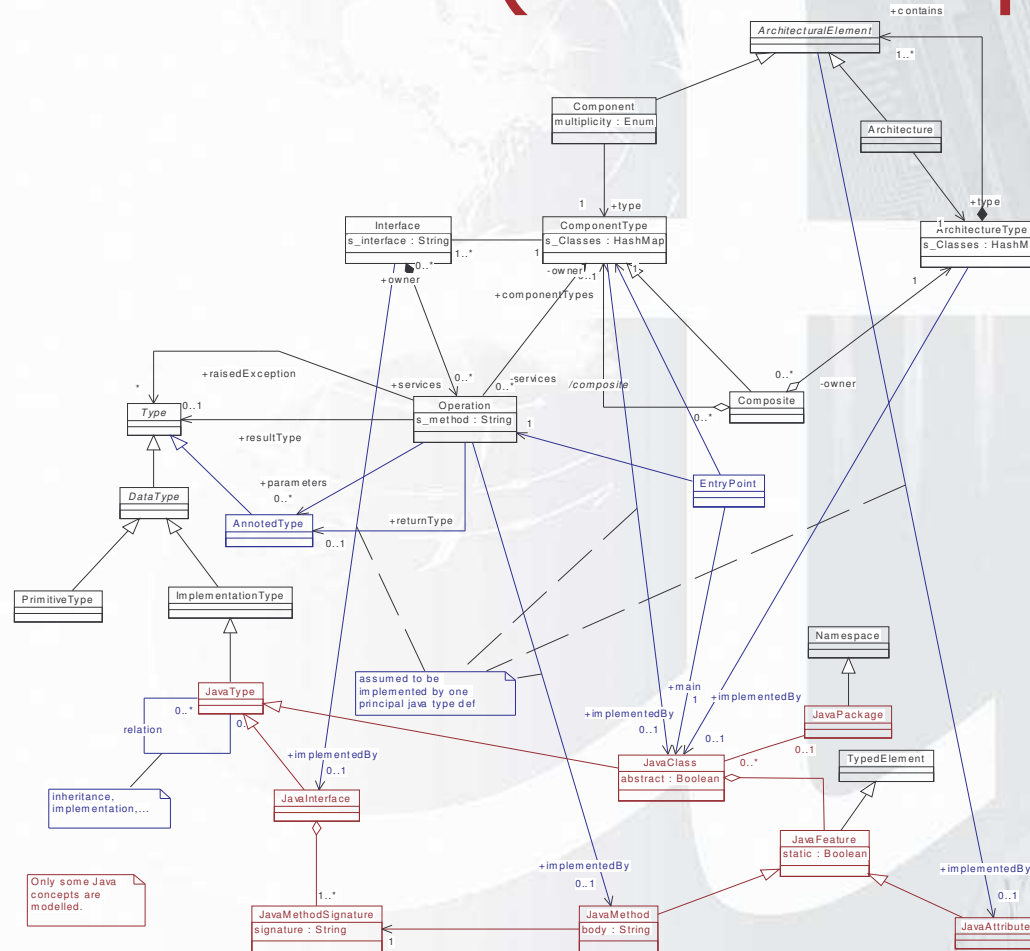


CCMM v1.0 (instances)

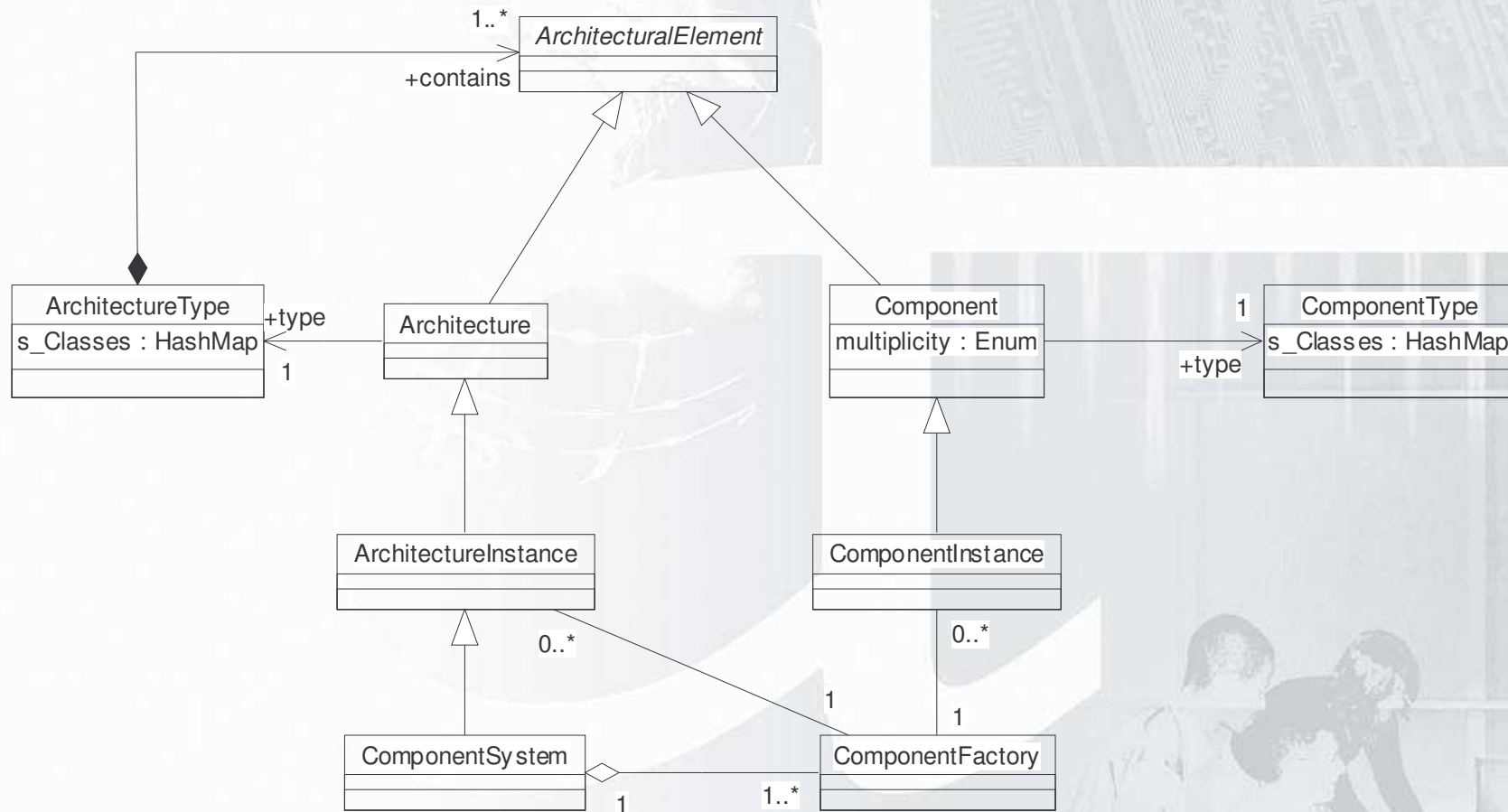


CCMM v1.0 (code mapping)

Code mapping include annotation management and component implementation



CCMM v1.0 (instances)



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Discussions (see paper)

This is a draft version.

From the above document and models lets try to get a synthesis model.

- Modelling concepts and organisation
- Conflicting concepts
- Modelling issues
- Constraints
- API

Discussions

- Track the bugs
 - General/specialised
 - Incompleteness
 - Inconsistency
- Fulfill the draft version
 - Constraints
 - API requirements

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Validation

- Gainable Result of the first workshop 2008
- Release 1.1
 - Layered model
 - Complete and consistent
 - Original but generalizable
 - WFR and Constraints
 - API requirements
 - Etc.
- Technical Report