Reasoning Module (WP3)

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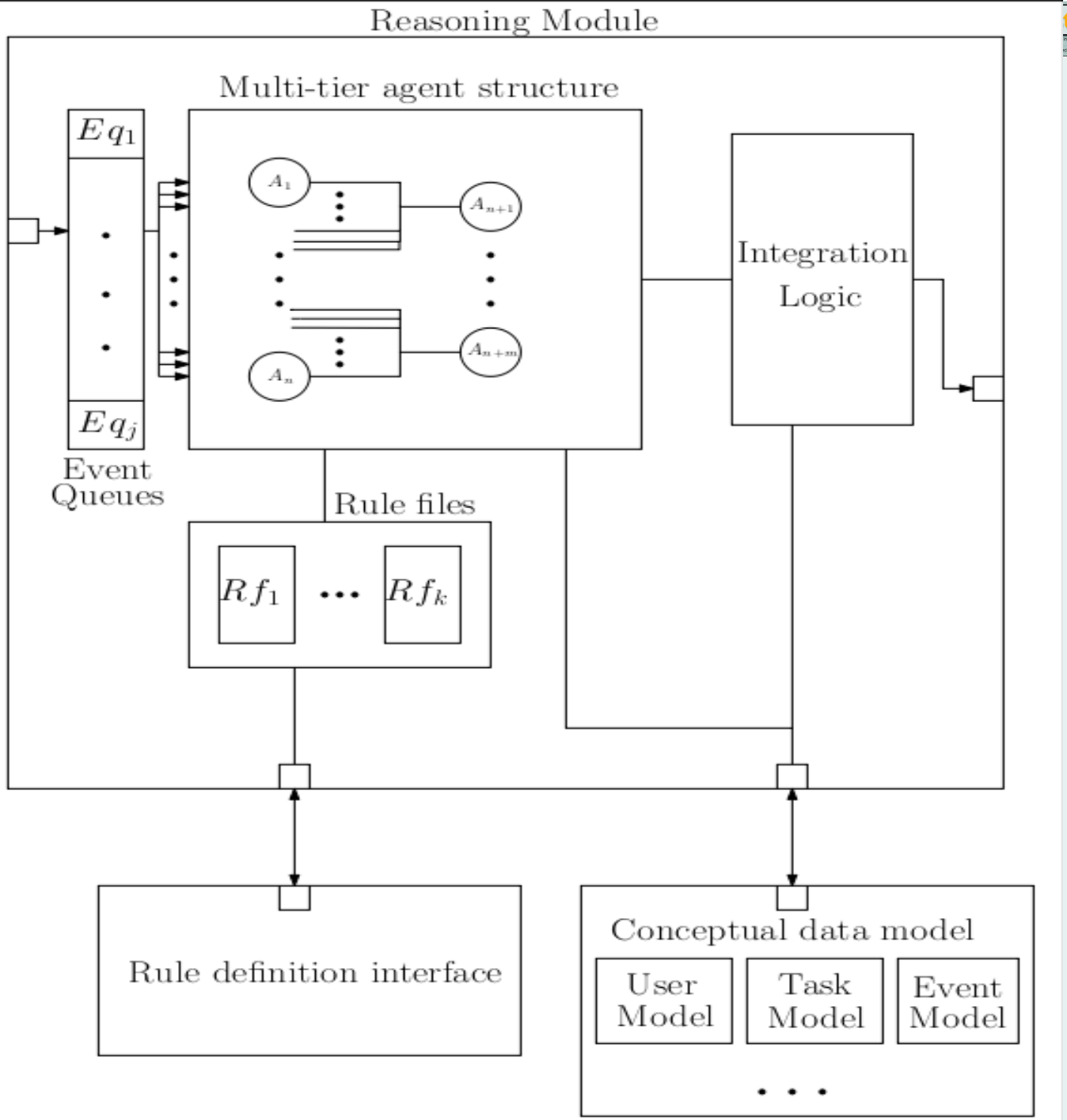

Reasoning Module
Multi-tier agent structure
Eq_1
Eq_j
Event Queues
A_1
A_n
A_{n+1}
A_{n+m}
Integration Logic
Rule files
Rf_1
Rf_k
Rule definition interface
Conceptual data model
User Model
Task Model
Event Model

Examples of reasoning rules

=> defined at configuration time

If new_external_event and event(keyword) matches current_task(keyword)
then new_external_event _priority = .8

If new_external_event and event(originator) matches current_task(relevant_people)
then new_external_event _priority = .5

Rules grammar

- If *event_type* and *eval* then *action*
- *event_type*::= <the events defined in the CF>
- *eval*::= *lparam cond rparam* | *eval* and *eval*
- *action*::= priority *shift_priority* | modality *set_modality* | explanation *build_explanation* | *action* ; *action*
- *etc.*

=> allows generation, validation, portability and manipulation via XML translation (editor)

Technology

- agents: applications server (Java, tomcat)
- communication: web services (SOAP)
- blackboard architecture: database (mySQL)
- open source components

Prototype

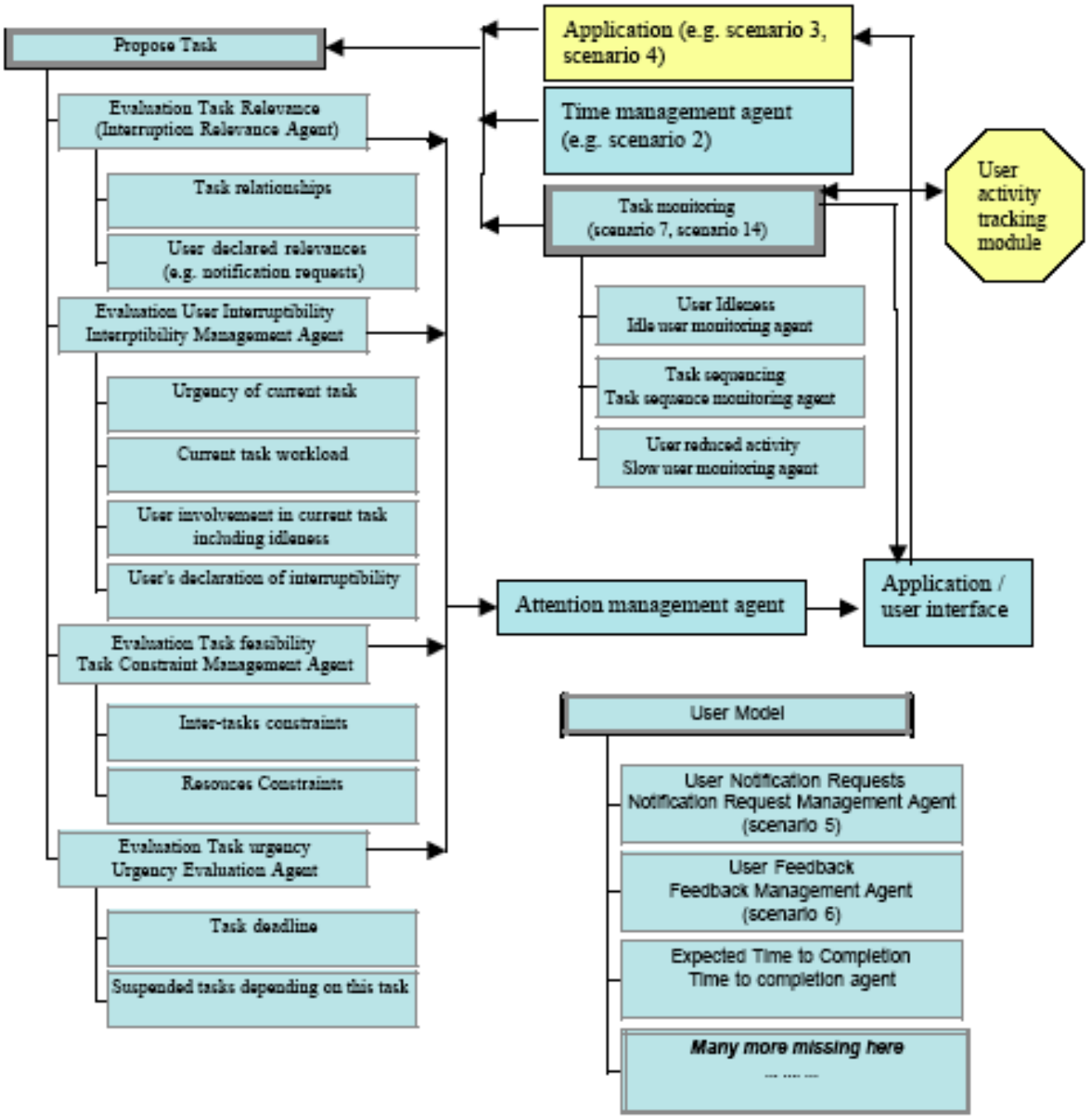
- scenario driven, from CF
- subset of the conceptual data model
- simple set of rules to validate the grammar
- made collaboration with others partners

Test deployment

- successful: Ontdeknet
- iterative process (response of the agents)
- test of the target scenarios

Future prototyping

- support of more scenarios
- improve reasoning
- other agents (time, community awareness)
- connection with context management tools
- definition of other interfaces to the module


Propose Task
Application (e.g. scenario 3, scenario 4)
Time management agent (e.g. scenario 2)
Task monitoring (scenario 7, scenario 14)
User activity tracking module
Evaluation Task Relevance (Interruption Relevance Agent)
Task relationships
User declared relevances (e.g. notification requests)
Evaluation User Interruptibility Interrptibility Management Agent
Urgency of current task
Current task workload
User involvement in current task including idleness
User's declaration of interruptibility
User Idleness Idle user monitoring agent
Task sequencing Task sequence monitoring agent
User reduced activity Slow user monitoring agent
Attention management agent
Application / user interface
Evaluation Task feasibility Task Constraint Management Agent
Inter-tasks constraints
Resources Constraints
Evaluation Task urgency Urgency Evaluation Agent
Task deadline
Suspended tasks depending on this task
User Model
User Notification Requests Notification Request Management Agent (scenario 5)
User Feedback Feedback Management Agent (scenario 6)
Expected Time to Completion Time to completion agent
Many more missing here