



WebSphere

Managing the uncertainty with Business Rules

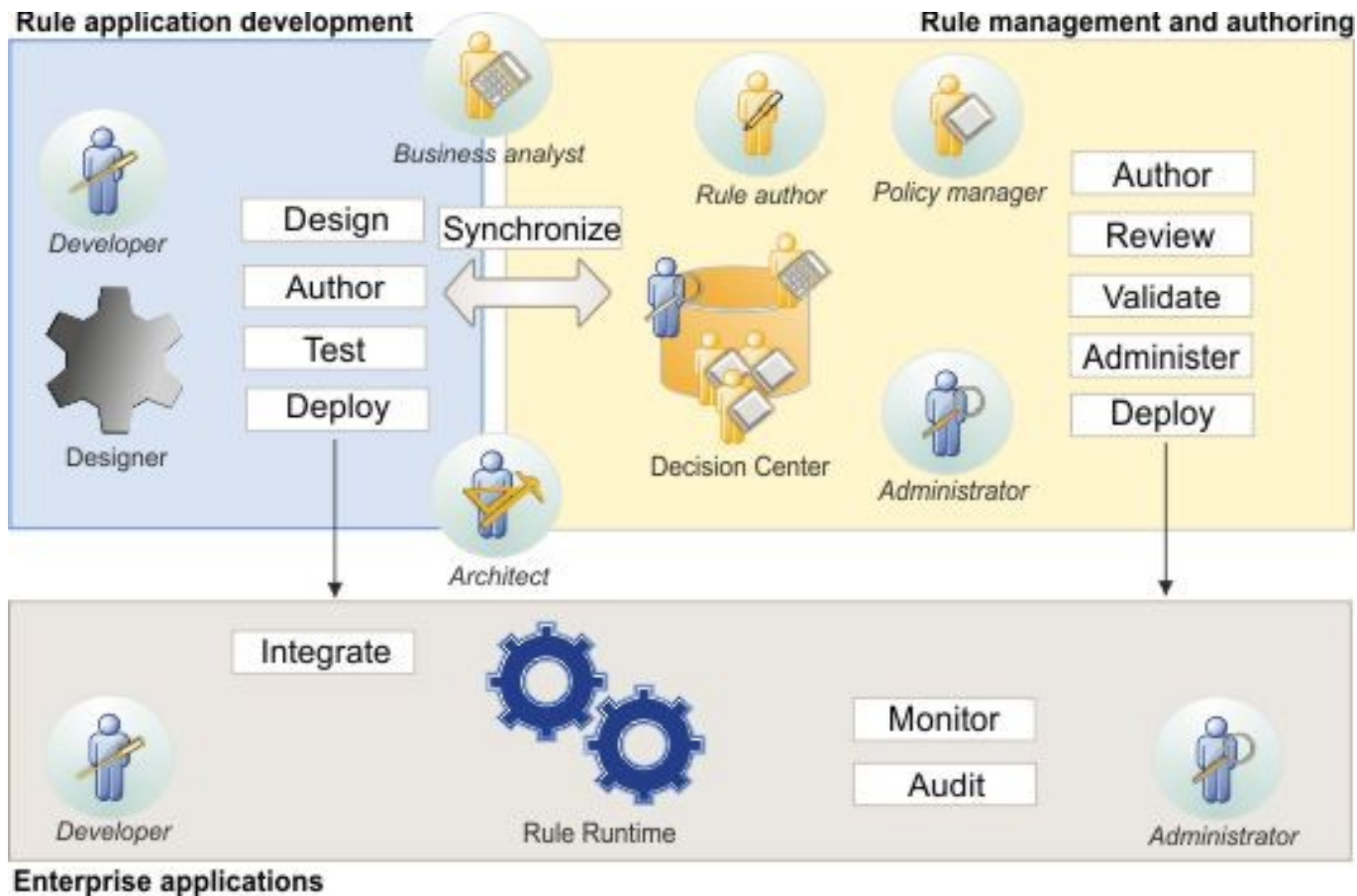
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ODM Overview

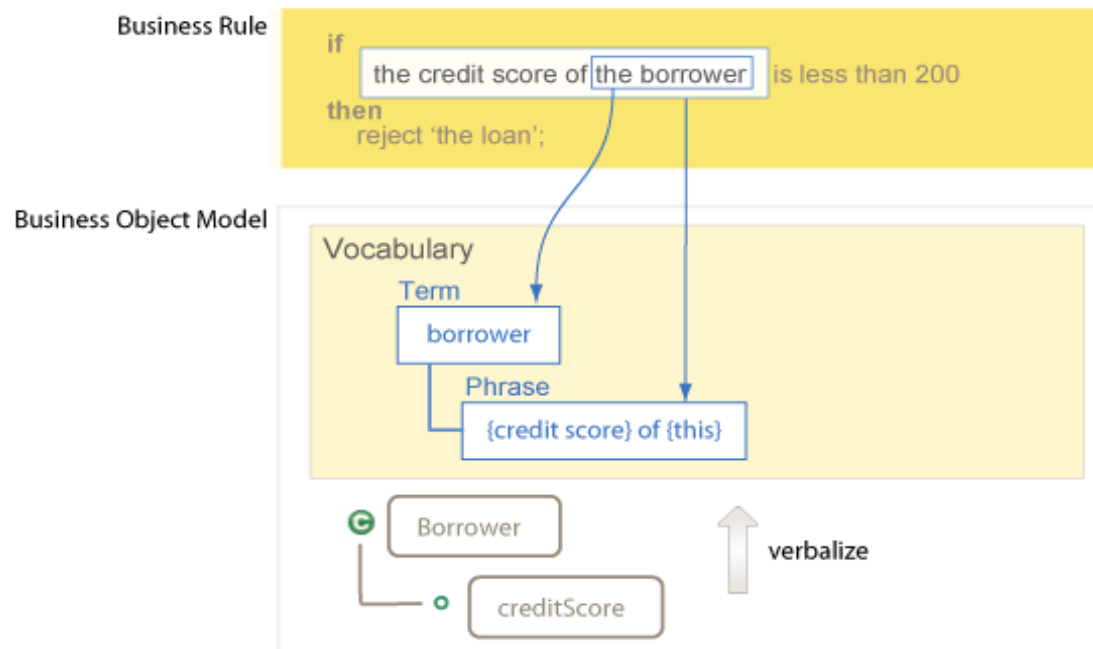
- IBM Lab France (Gentilly)
 - ODM/Engine Development team
 - Case of Advanced Studies
- Operational Decision Manager
 - Business Rule Management System
 - combines decision making and change detection
 - easy to evolve, trace, audit, and test
 - business agility enhancement
- Technical context
 - Java, Application Server
 - From ILOG JRules engine

ODM platform

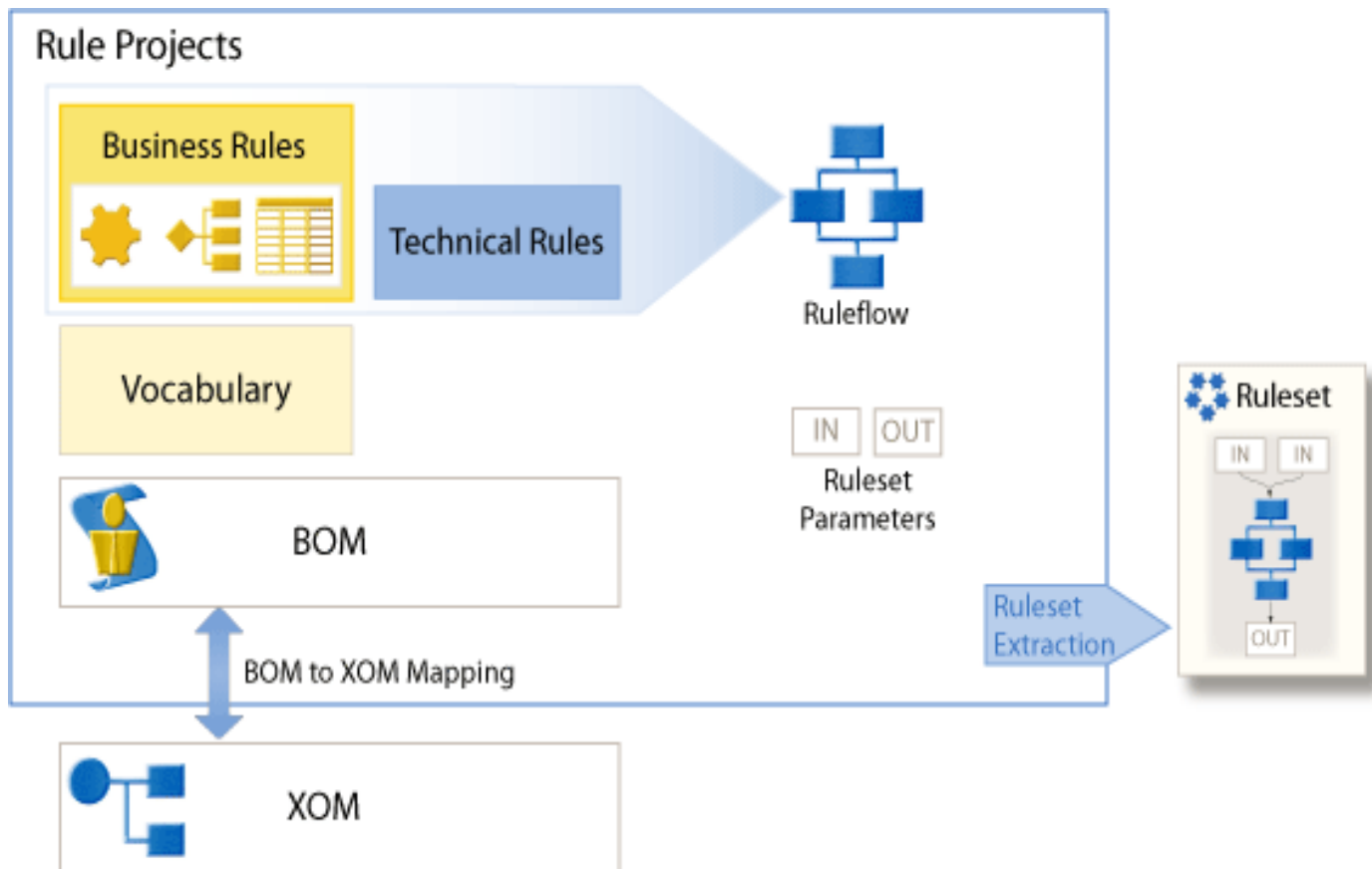


Business rules

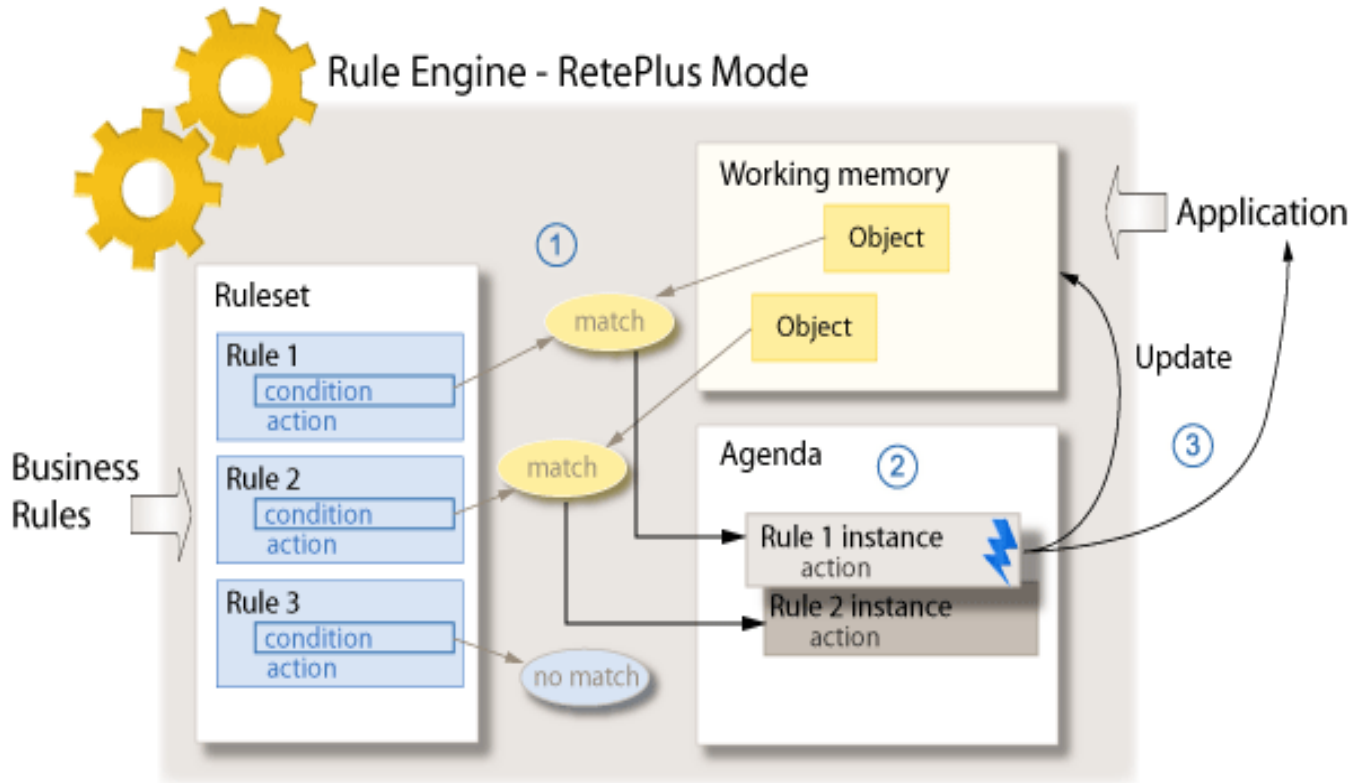
- Natural language
- Specialised editor
- Business concept/word



Business vs Technical Rules



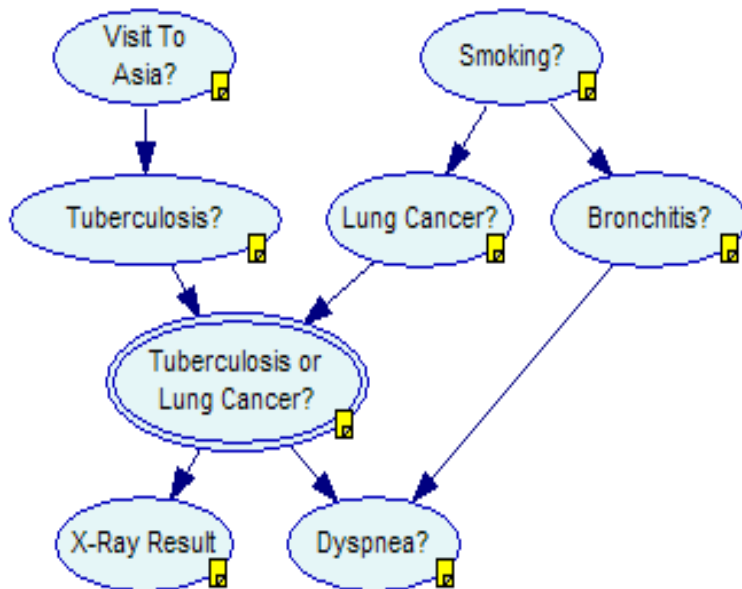
ODM RETE Rule Engine



URBS PhD

- Uncertain Reasoning for Business rulesS
- PhD started in 2014 (cifre, H. Agli)
- Collaboration with UPMC-LIP6 (C. Gonzales, P. Wuillemin)
 - Probabilistic Relational Model (O3PRM)
 - aGrUM probabilistic framework
- Objectives :
 - Graphical model for uncertain information processing
 - Decision-making improvement (inference, search, optim)
 - Coupling Rules and Probabilistic Engines efficiently
 - Java prototype based on ODM, aGrUM, SMILE, SPSS

Probabilistic Production Rules



```
rule « plan exams for cancer »  
  
if  
  the patient's risk of having  
  a lung cancer is upper than 40%  
  
then  
  plan an XRay exam  
  
else  
  plan a Dyspnea exam
```

- Rule pattern over probabilistic models (Bayesian Network, Markov Chain...)
- Execute action modifying the probabilistic models

URBS possible Use Cases

- Predictive and corrective maintenance
 - Vehicle,
 - Computer network
- Medical care (patient follow-up, diagnosis)
- Fraud detection
- Loan validation
- Open data mining

Useful Links

- ODM documentation:
 - Reference:
<http://pic.dhe.ibm.com/infocenter/dmanager/v8r5/index.jsp>
 - Guidelines:
<http://www.redbooks.ibm.com/abstracts/redp4836.html>
 - Performance:
<http://www.redbooks.ibm.com/abstracts/redp4899.html>
- O3PRM :
 - <http://o3prm.lip6.fr/>
 - <https://forge.lip6.fr/projects/aGrUM/wiki>

Q&A

- Thank you!