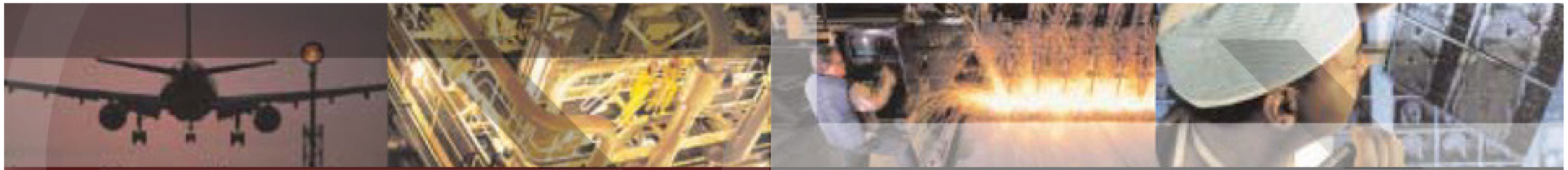
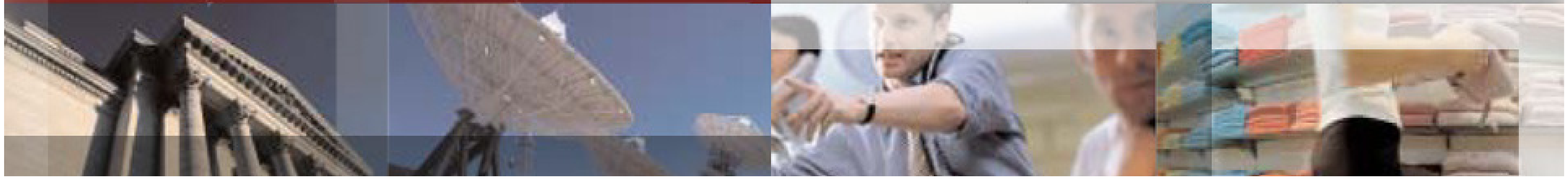


The Power of Now®

Update on the OMG PRR Standard

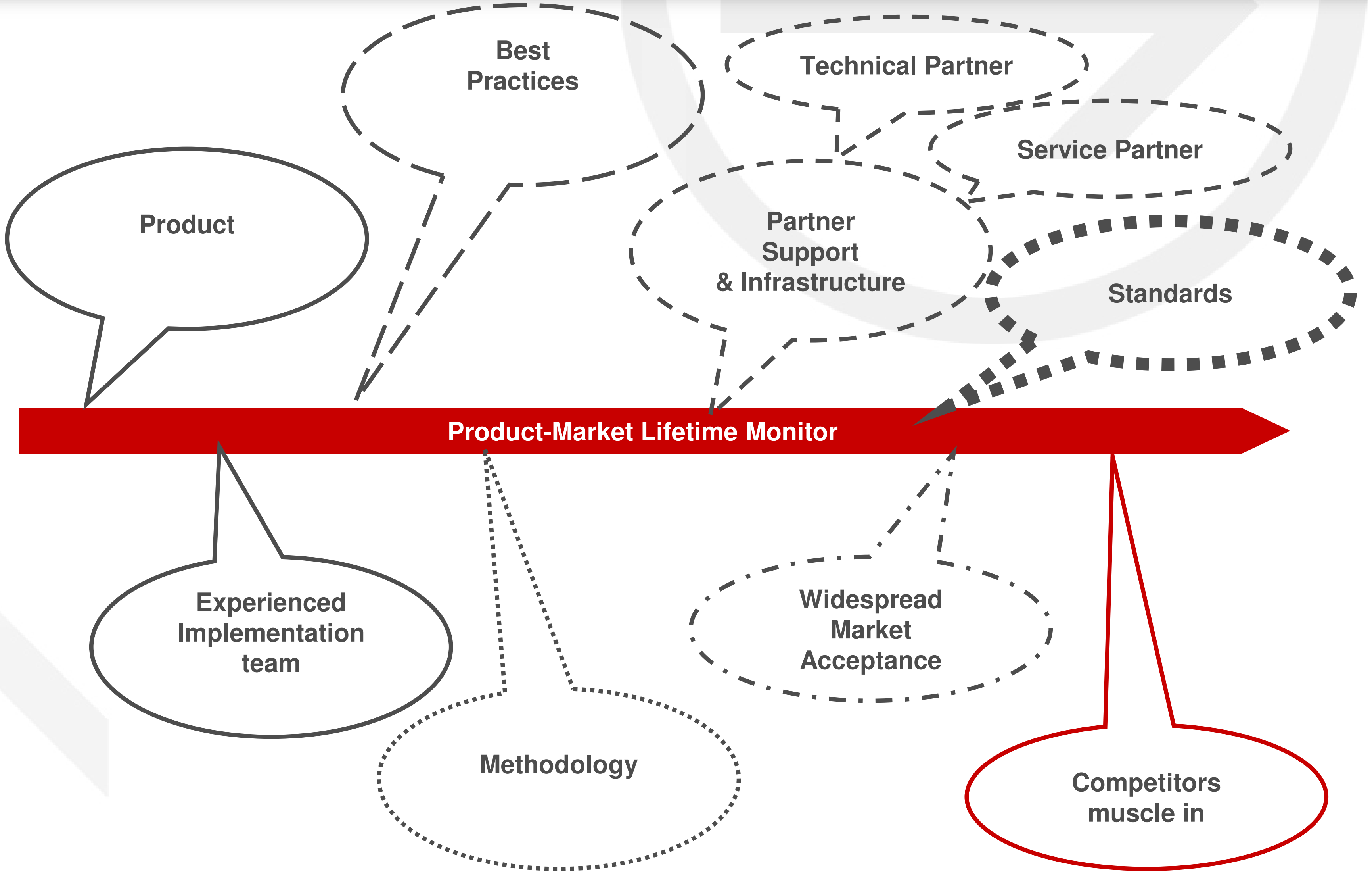
RuleMarkupLanguages 2008 Conference

Paul Vincent
TIBCO Software Inc.

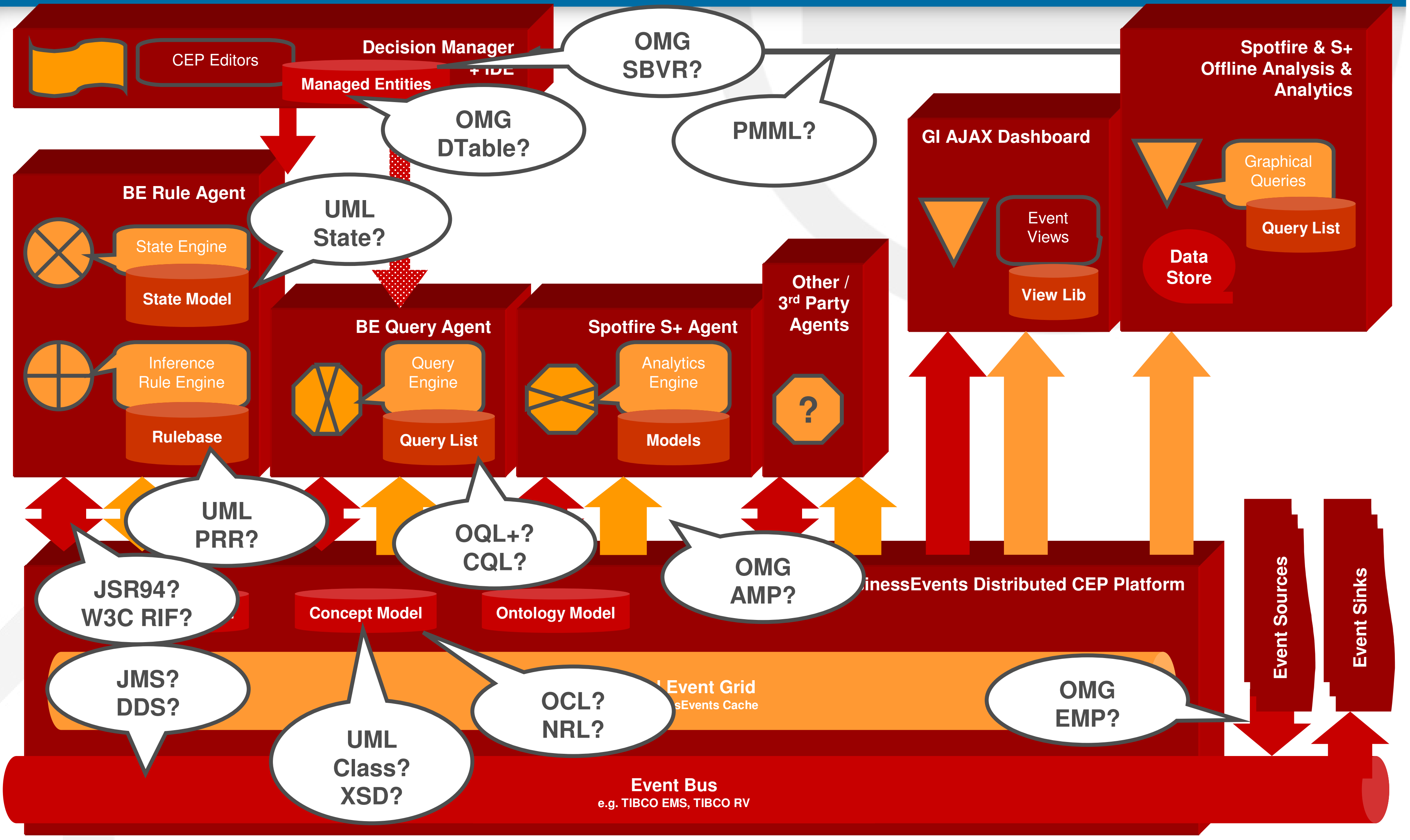


I DON'T NEED TO KNOW THE DETAILS. JUST GIVE ME THE HIGH ALTITUDE VIEW.
scottadams@aol.com
www.dilbert.com
FROM A HIGH ALTITUDE WE'RE ALL A BUNCH OF TERMITES TRYING TO EAT THE SAME LOG.
8-14-08 © 2008 Scott Adams, Inc./Dist. by UFS, Inc.
MAYBE DRILL DOWN A LITTLE MORE.
THE TERMITES HATE EACH OTHER.

Why am I here?
(Where do Standards Fit in Commercial IT Tools?)

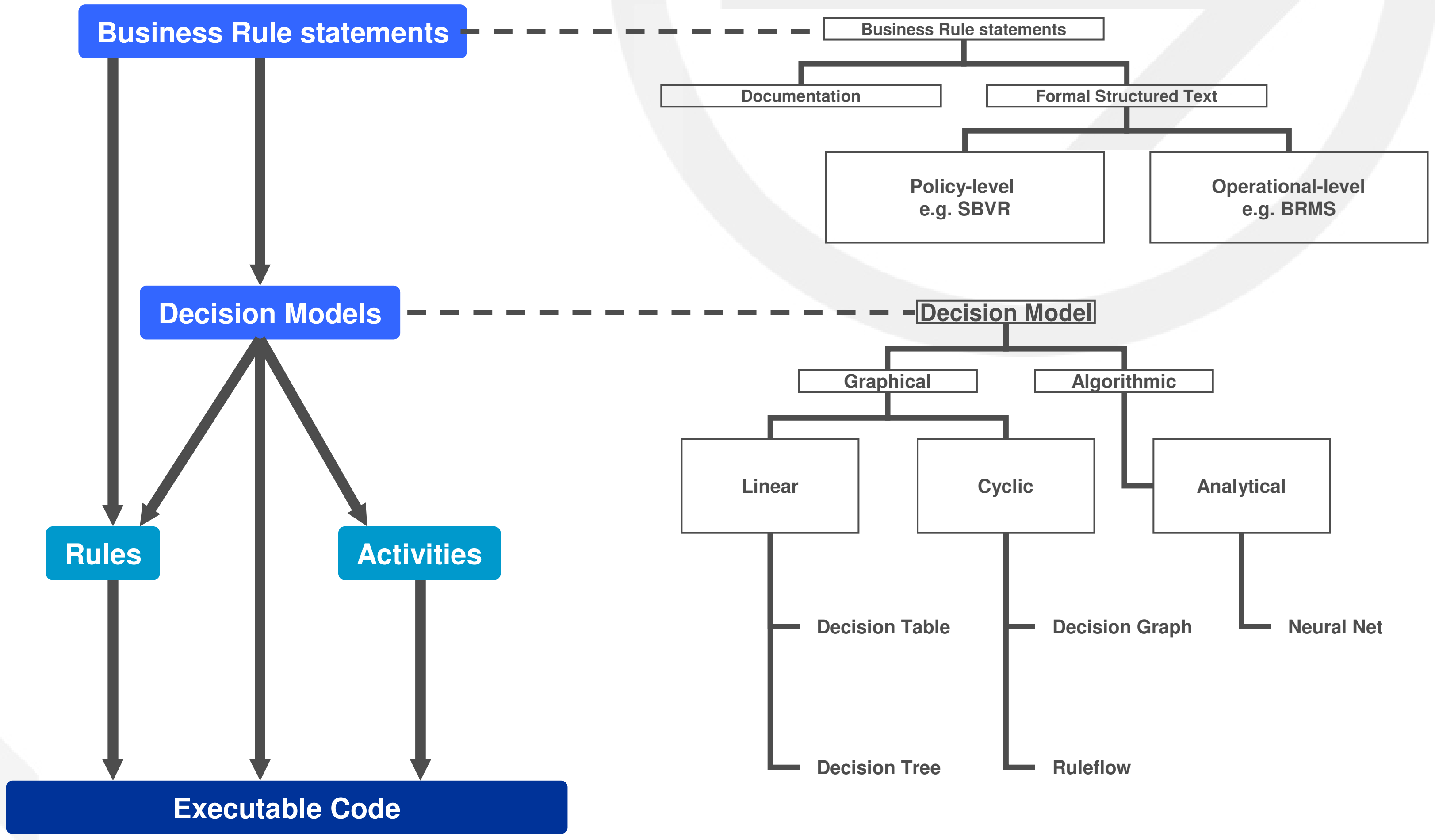

Best Practices
Technical Partner
Service Partner
Product
Partner Support & Infrastructure
Standards
Product-Market Lifetime Monitor
Experienced Implementation team
Widespread Market Acceptance
Methodology
Competitors muscle in

Rule
Where do Standards fit in a current Software Tool?

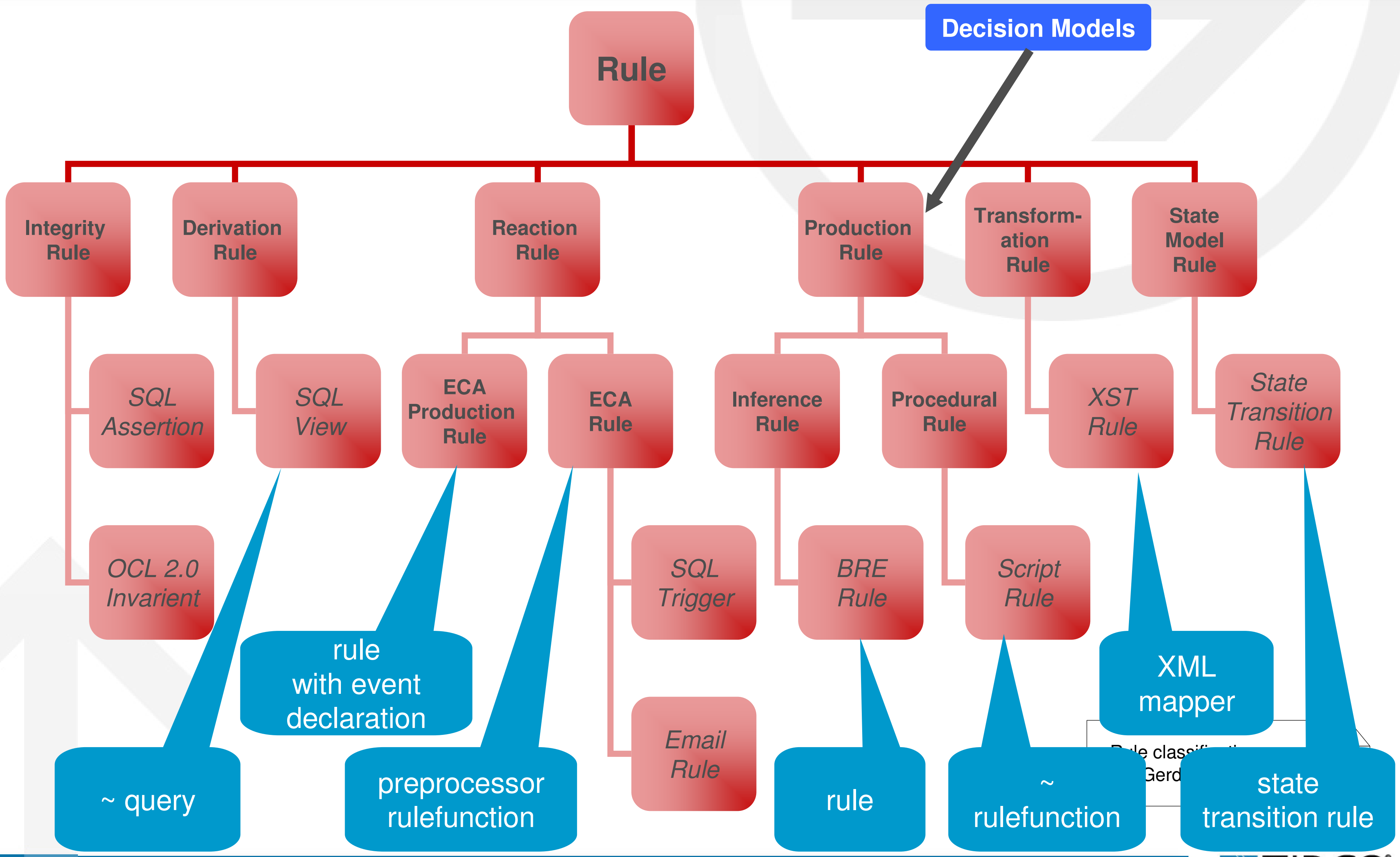


TIBCO The Power of Now®

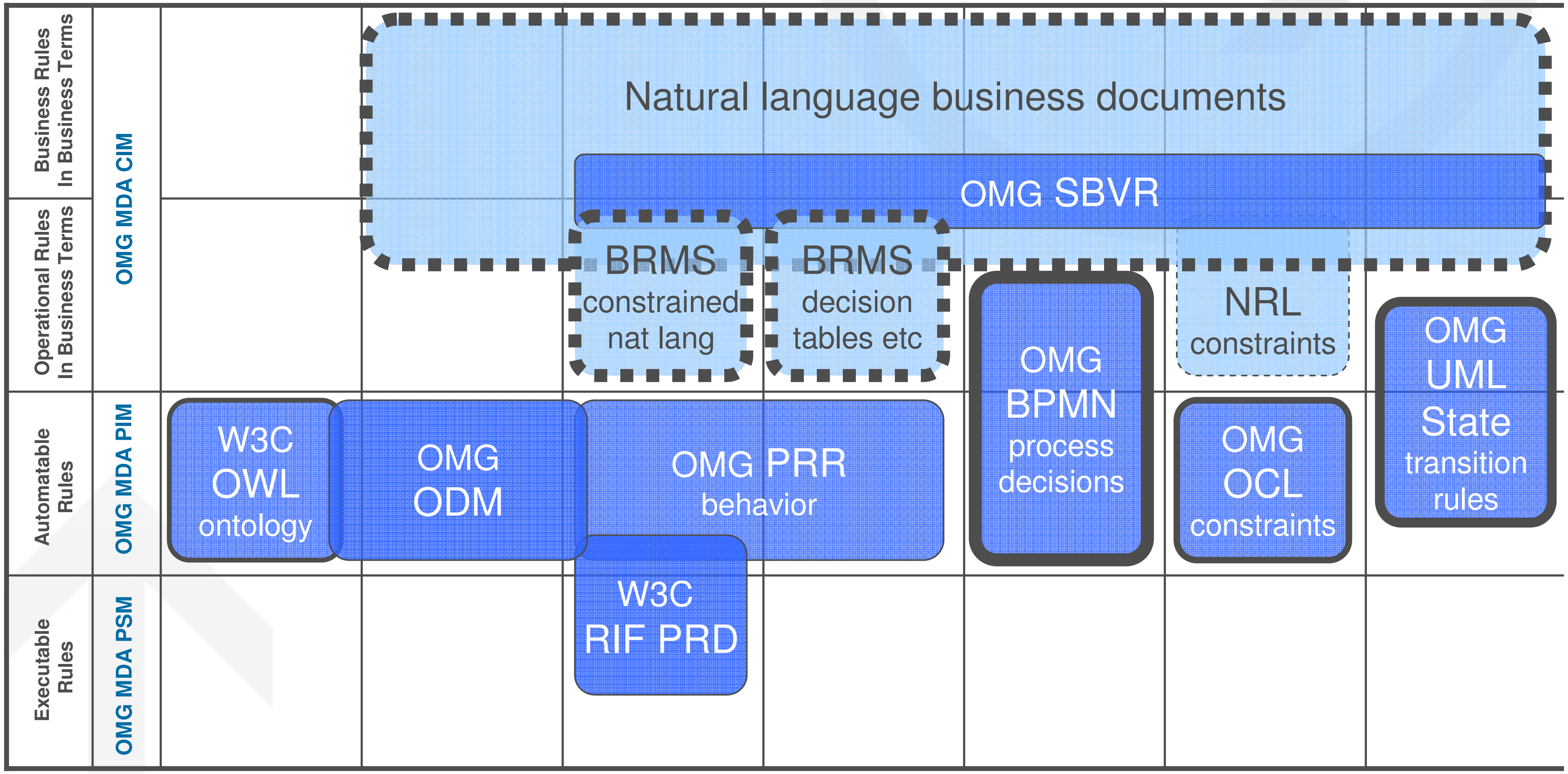
Where do Rules fit in Software Tools?



Where do Rule Types fit in Software Tools?



Where do Standards fit in rules?



Business Rules In Business Terms
Operational Rules In Business Terms
Automatable Rules
Executable Rules
OMG MDA CIM
OMG MDA PIM
OMG MDA PSM
Natural language business documents
OMG SBVR
BRMS constrained nat lang
BRMS decision tables etc
OMG BPMN process decisions
NRL constraints
OMG UML State transition rules
W3C OWL ontology
OMG ODM
OMG PRR behavior
OMG OCL constraints
W3C RIF PRD

TIBCO The Power of Now®

Who's who…

- **Cross-domain / domain of software technology**
  - OMG = focus on modeling + includes BPMI
  - W3C = focus on web technologies including semantic web
  - OASIS = focus on application of technologies
- **Domain specific (sometimes location specific)**
  - MISMO = mortgage industry
  - ACORD = insurance industry
  - RosettaNet = supply chain industry
  - Etc etc

OMG Production Rule Representation

- Production Rule Representation is a cross-vendor rule modeling representation
- Consortium of developers and supporters from

RFP (2003) | Development (2004-7) | Adoption (2007) | Finalization (2007-8)

ILOG Changing the rules of business™

TIBCO® The Power of Now®

NoMagic

sandpiper software®

adaptive

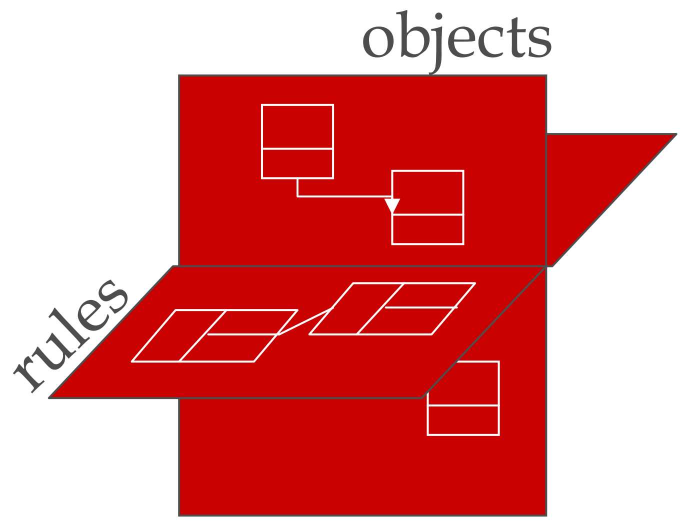
BUSINESS RULE SOLUTIONS, LLC THE BUSINESS RULE TECHNIQUE COMPANY

UNISYS imagine it. done.

Business Semantics

What is OMG PRR?

1. **Formal UML model for production rules**
   - Defined in UML
   - Extends UML so production rules are **1st class citizens** alongside objects
   - Provides an XML format (XMI) for model interchange
2. **Vendor-neutral UML-friendly rule representation**
   - Rules specified via tools, not manually!

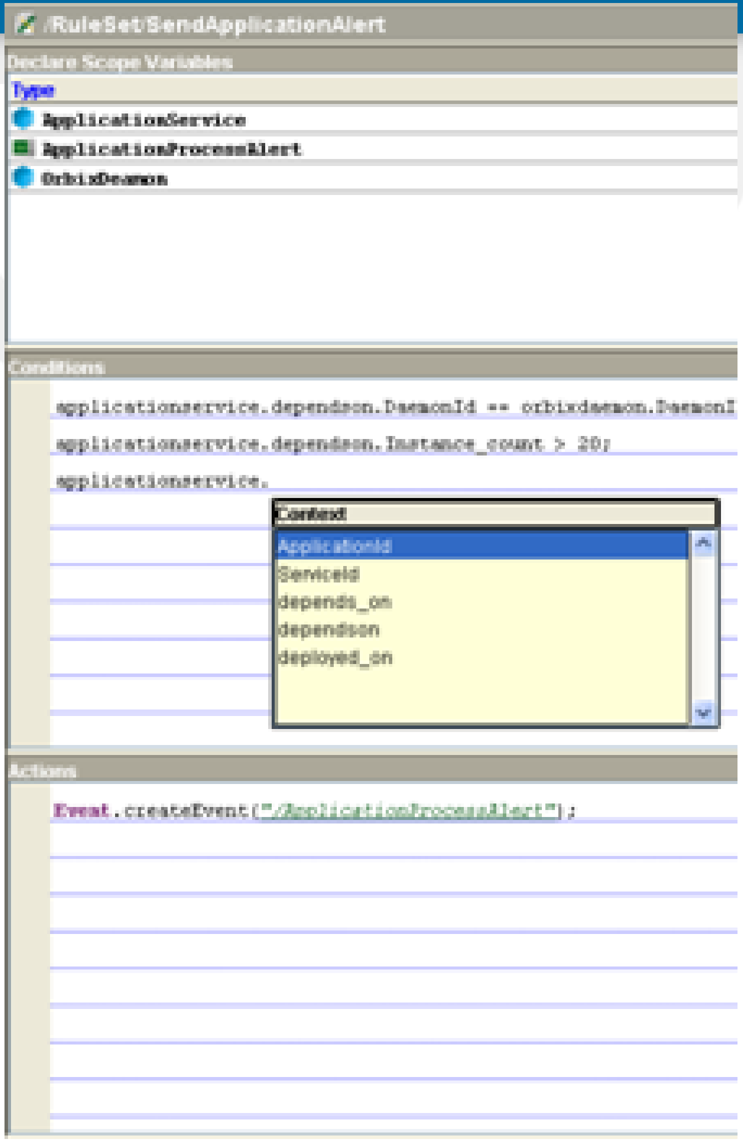


PRR 1.0 defines

- **2 rule "semantics" (types):**
  - Forward chaining inference rules (e.g. Rete-model)
    - For commonly-used PR rule engines
  - Sequentially processed procedural rules (e.g. scripts)
    - For tools that separate out simple business logic as non-inference production rules
- **Import/export for rule modeling via XMI**
  - Import / export rules between UML tools and BRMSs
- **Issues faced**
  - No generic metamodel for generic rules in UML
  - No expression language for conditions and actions

FYI: How Rete-driven Production Rules

- **Declarative Rule definition**
  - Defined in terms of RuleVariables
  - Each combination tuple of such variables + the instantiated rule condition and action represents a “rule instance”
- **Scope / declaration**
  - Classes / Events relevant for the rule
- **Conditions**
  - Filters on declarations
  - Joins across declarations
- **Actions**
  - What to do
    for each tuple
    that satisfies the conditions…

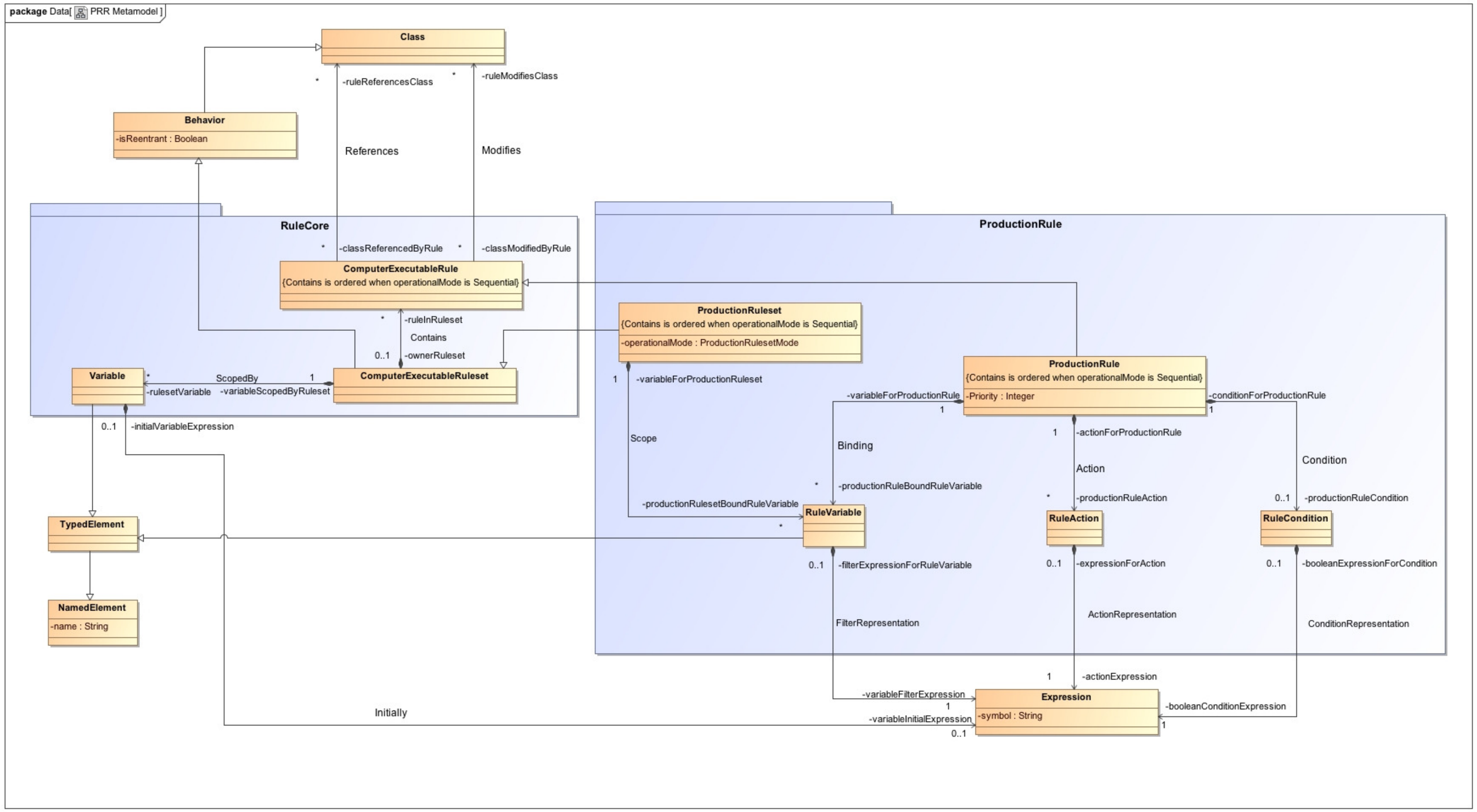


```
ApplicationService
ApplicationProcessAlert
OrbixDeamon
```

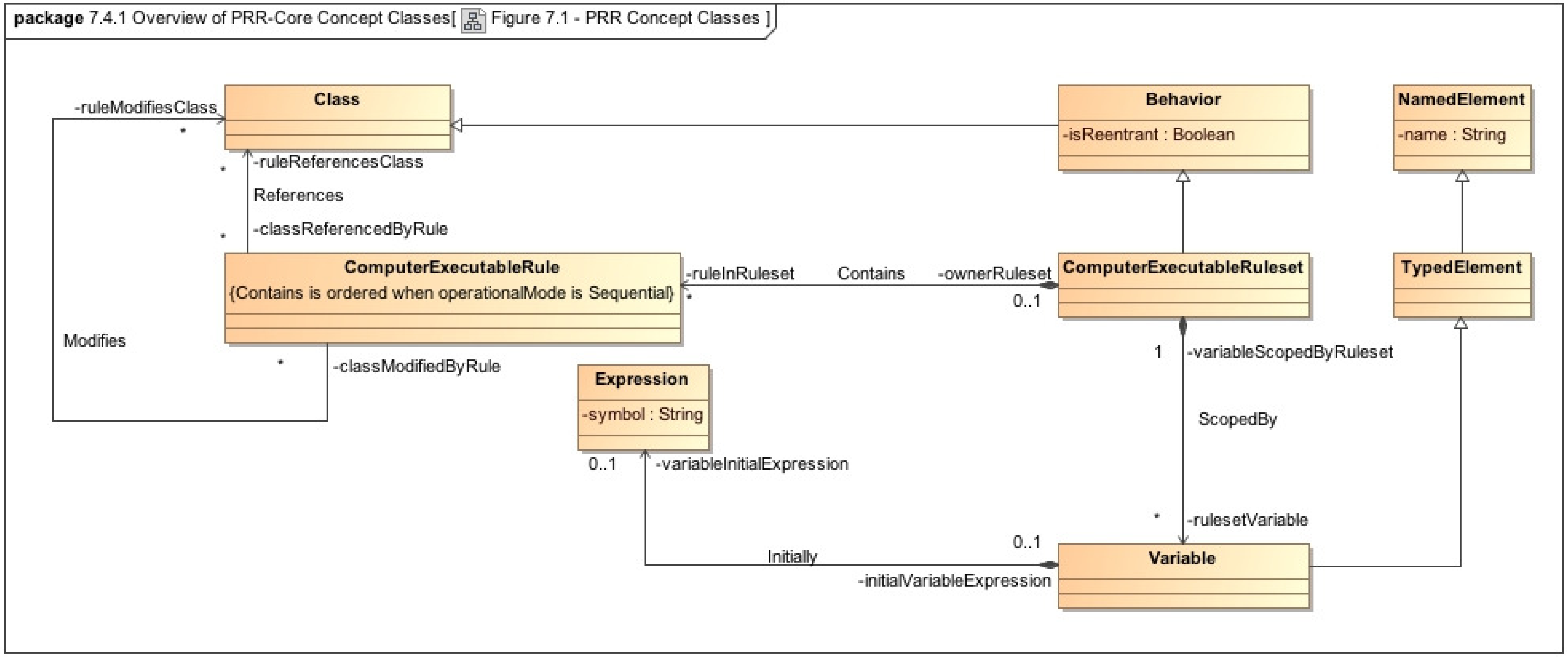
```
applicationservice.dependson.DaemonId == orbixdaemon.DaemonI
applicationservice.dependson.Instance_count > 20;
applicationservice.
```

```
Event.createEvent("/ApplicationProcessAlert");
```

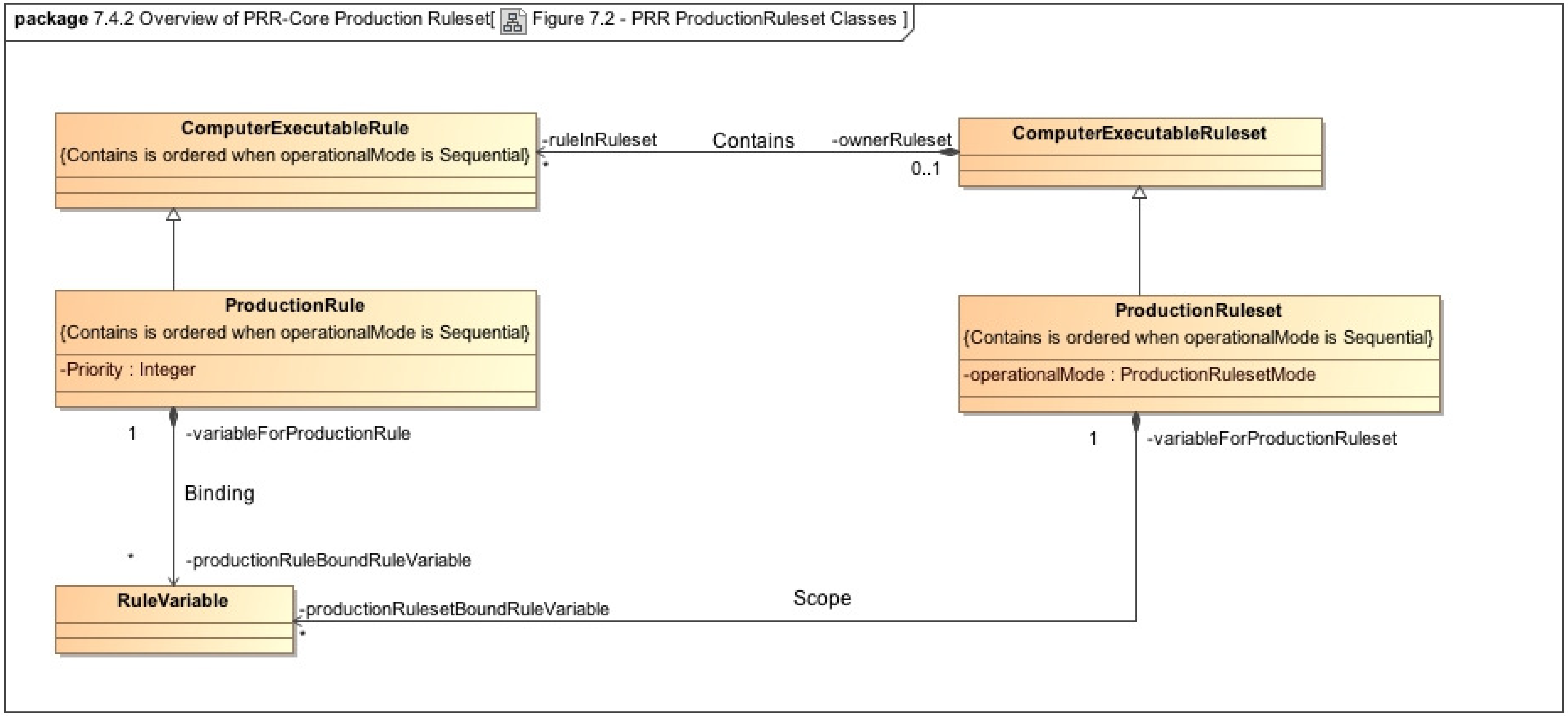
PRR Metamodel



PRR Core Concept Classes

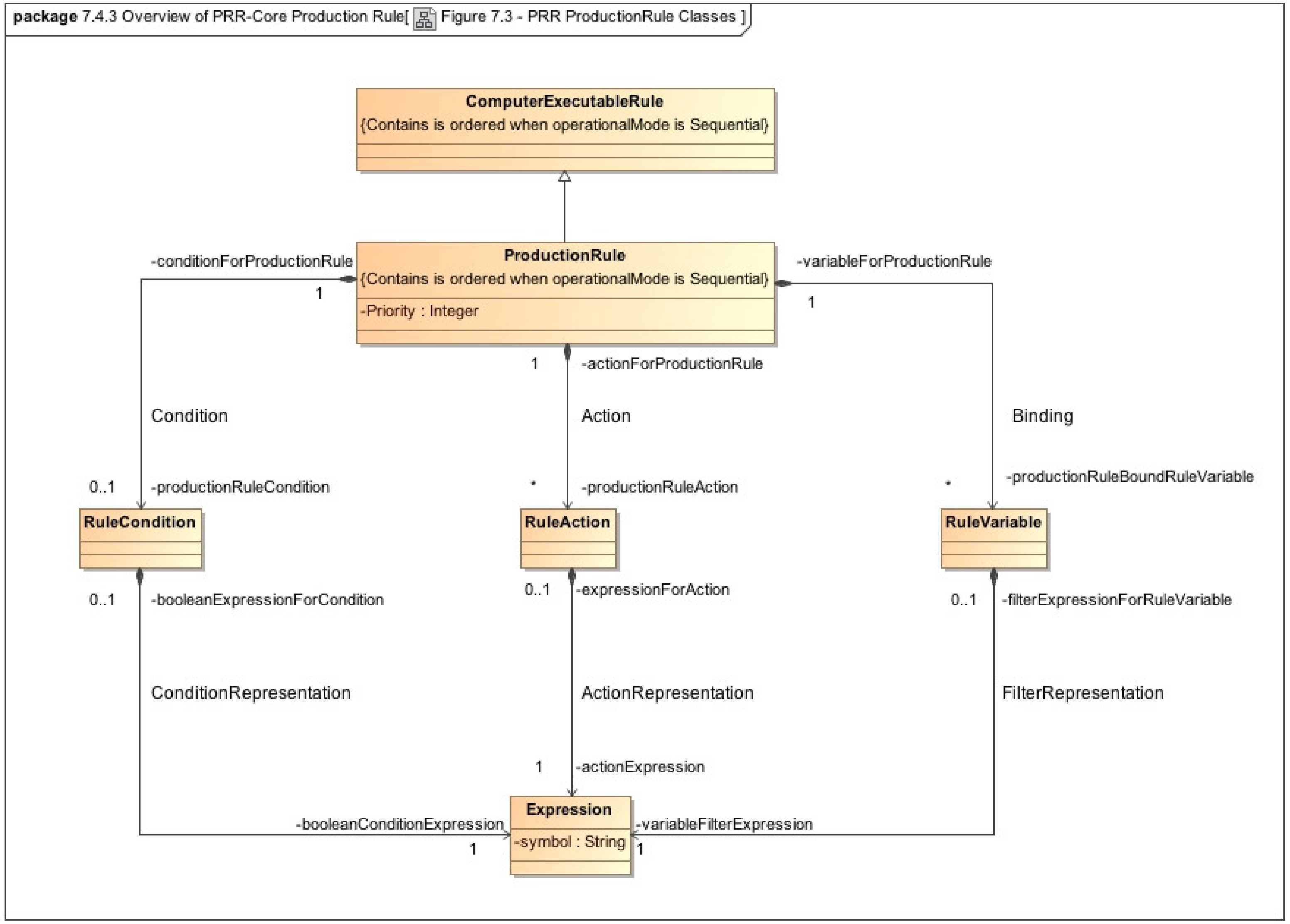


PRR Core Production Ruleset Classes



package 7.4.2 Overview of PRR-Core Production Ruleset[Figure 7.2 - PRR ProductionRuleset Classes]
ComputerExecutableRule
{Contains is ordered when operationalMode is Sequential}
-ruleInRuleset
*
Contains
-ownerRuleset
0..1
ComputerExecutableRuleset
ProductionRule
{Contains is ordered when operationalMode is Sequential}
-Priority : Integer
ProductionRuleset
{Contains is ordered when operationalMode is Sequential}
-operationalMode : ProductionRulesetMode
1
-variableForProductionRule
Binding
*
-productionRuleBoundRuleVariable
1
-variableForProductionRuleset
RuleVariable
-productionRulesetBoundRuleVariable
*
Scope

PRR Core Production Rule Classes



package 7.4.3 Overview of PRR-Core Production Rule[Figure 7.3 - PRR ProductionRule Classes]
ComputerExecutableRule
{Contains is ordered when operationalMode is Sequential}
ProductionRule
{Contains is ordered when operationalMode is Sequential}
-Priority : Integer
-conditionForProductionRule
1
-variableForProductionRule
1
1
-actionForProductionRule
Condition
Action
Binding
0..1
-productionRuleCondition
*
-productionRuleAction
*
-productionRuleBoundRuleVariable
RuleCondition
RuleAction
RuleVariable
0..1
-booleanExpressionForCondition
0..1
-expressionForAction
0..1
-filterExpressionForRuleVariable
ConditionRepresentation
ActionRepresentation
FilterRepresentation
1
-actionExpression
Expression
-symbol : String
-booleanConditionExpression
1
-variableFilterExpression
1

PRR Summary

- **PRR provides a standard metamodel for production rules as used in popular rule engines for business automation**
- **PRR is constrained to the types of rules executed by rule engines**
- **Implications:**
  - UML modeling tools can become “rule-aware”
  - UML tools and business rule mgmt tools can cooperate on the rule development lifecycle
  - Standardized model for production rules for other users (eg interchange, DSL domain-specific languages, etc)
- **But:**
  - PRR does not standardize rule management / business syntax for rules
  - XMI basis for PRR implies model/SDLC interchange not runtime interchange

- The End!

TIBCO® The Power of Now®