Business Rules usage for BPM and Integration

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Technical Sales – IBM Decision Management & BPM

Agenda

- **Overview of Business Rules**

- **When to use a tool's built in rules logic**

- **When to externalise the logic**

- **Demonstration - building a ODM decision service**

- **Demonstration – Calling the decision service from an IBM BPM process**
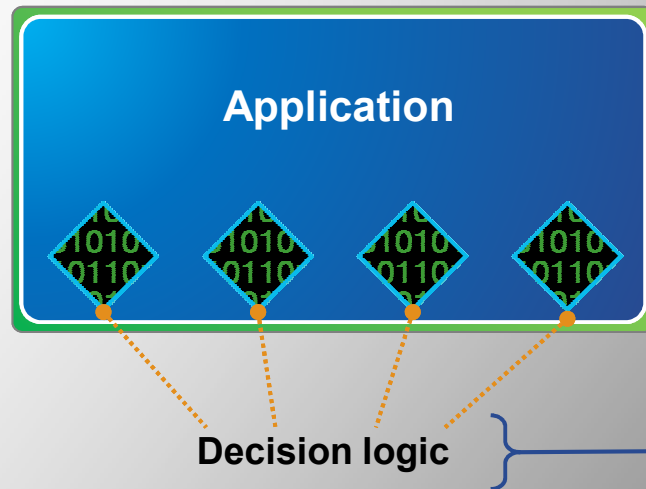
- **Summary**

- **Q & A**

IBM Operational Decision Manager V8.5 Introduction

Externalising Decisions from Applications into Business Rules

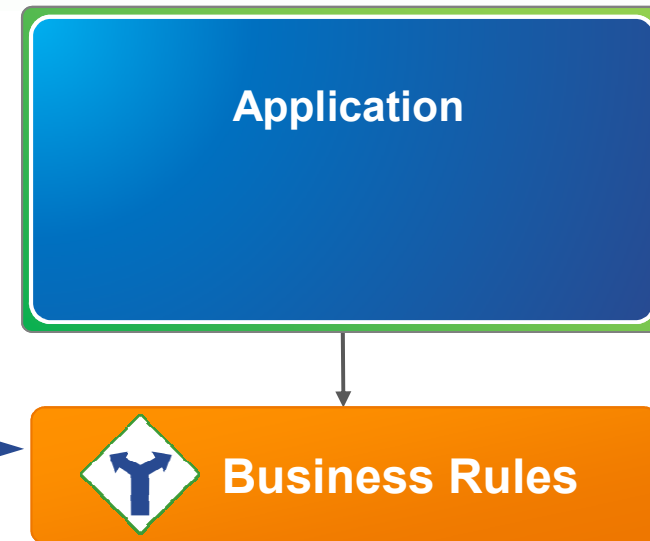*Manage decision logic independently from applications*

Without Decision Management
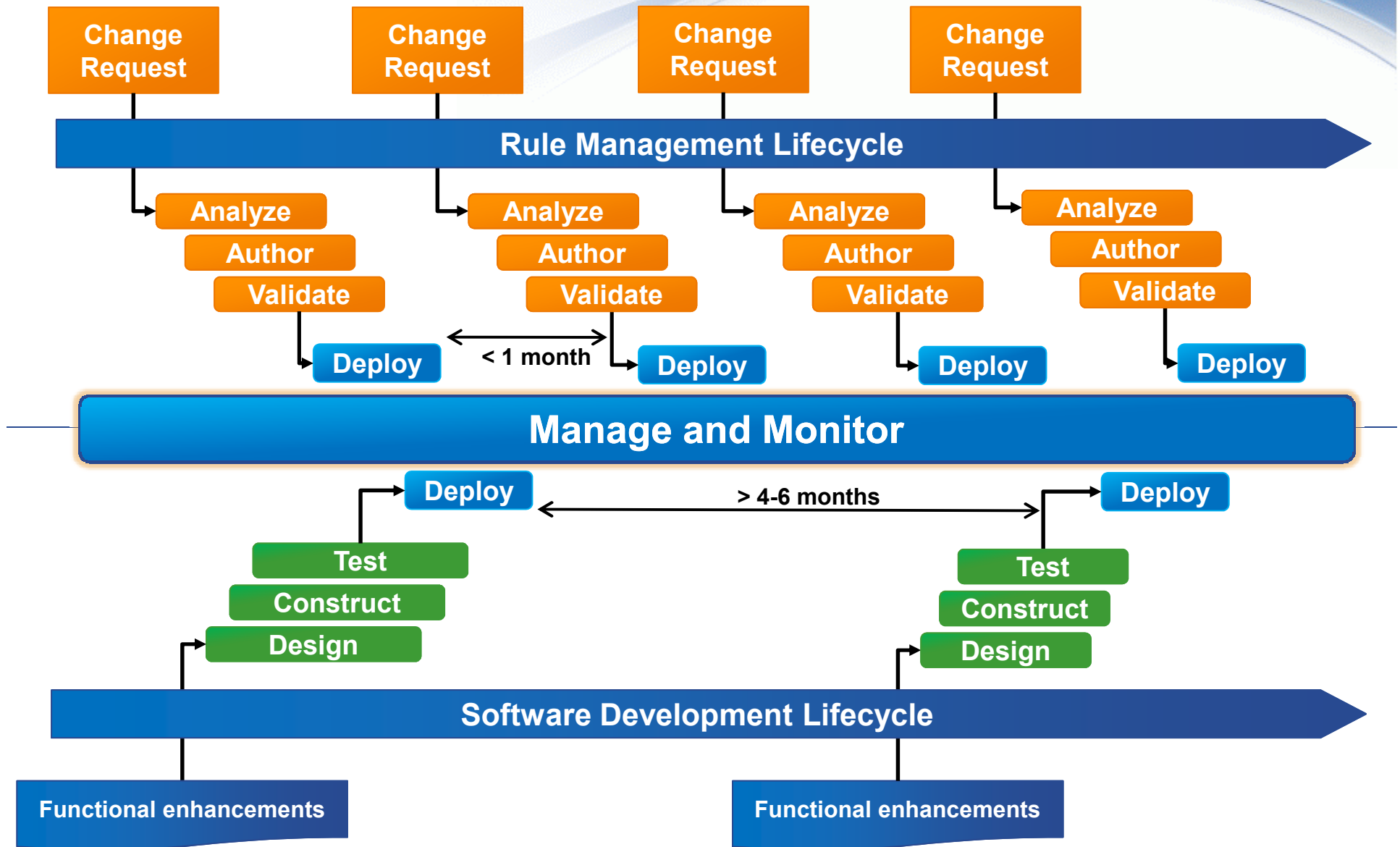
Application

Decision logic

- Rules written in software code cannot be read by business people

- Hard coded rules are difficult to change

- Rules intertwined within applications cannot be reused by other systems

With Decision Management

Application

Business Rules

- Natural language rules can be easily read

- Externalized rules are easy to change

- Centralized rules enable reuse and consistency

Decisions Need to Change Faster Than Software Applications

Change Request | **Change Request** | **Change Request** | **Change Request**

Rule Management Lifecycle

Analyze | Analyze | Analyze | Analyze
Author | Author | Author | Author
Validate | Validate | Validate | Validate
Deploy | < 1 month | Deploy | Deploy | Deploy

Manage and Monitor

Deploy | > 4-6 months | Deploy
Test | Test
Construct | Construct
Design | Design

Software Development Lifecycle

Functional enhancements | **Functional enhancements**

5

Benefits of using Business Rules

Agility
- Operationalise policy changes in days versus months
- Decrease cost of implementing business practices, policies & regulations

Efficiency and Productivity
- Improve straight-through-processing
- Involve business users for change requests with built-in governance

Decision Quality and Precision
- Implement more fine-grained, targeted decisions
- Perform what-if and impact analyses prior to deployment

Consistency
- Automate and consistently enforce decision policies
- Ensure policies and associated semantics are consistent across channels

Transparency, Auditability, Compliance
- Track what decisions were made and why (runtime)
- Track what policies were changed and by whom (rule management)

IBM Software Group

IBM

What is a business rule?

- **Action Rules**

if
  the age of **'the vehicle'** is at most 3
then
  add a 15 % discount to **'the coverage quote'** , reason: **"New vehicle discount"** ;
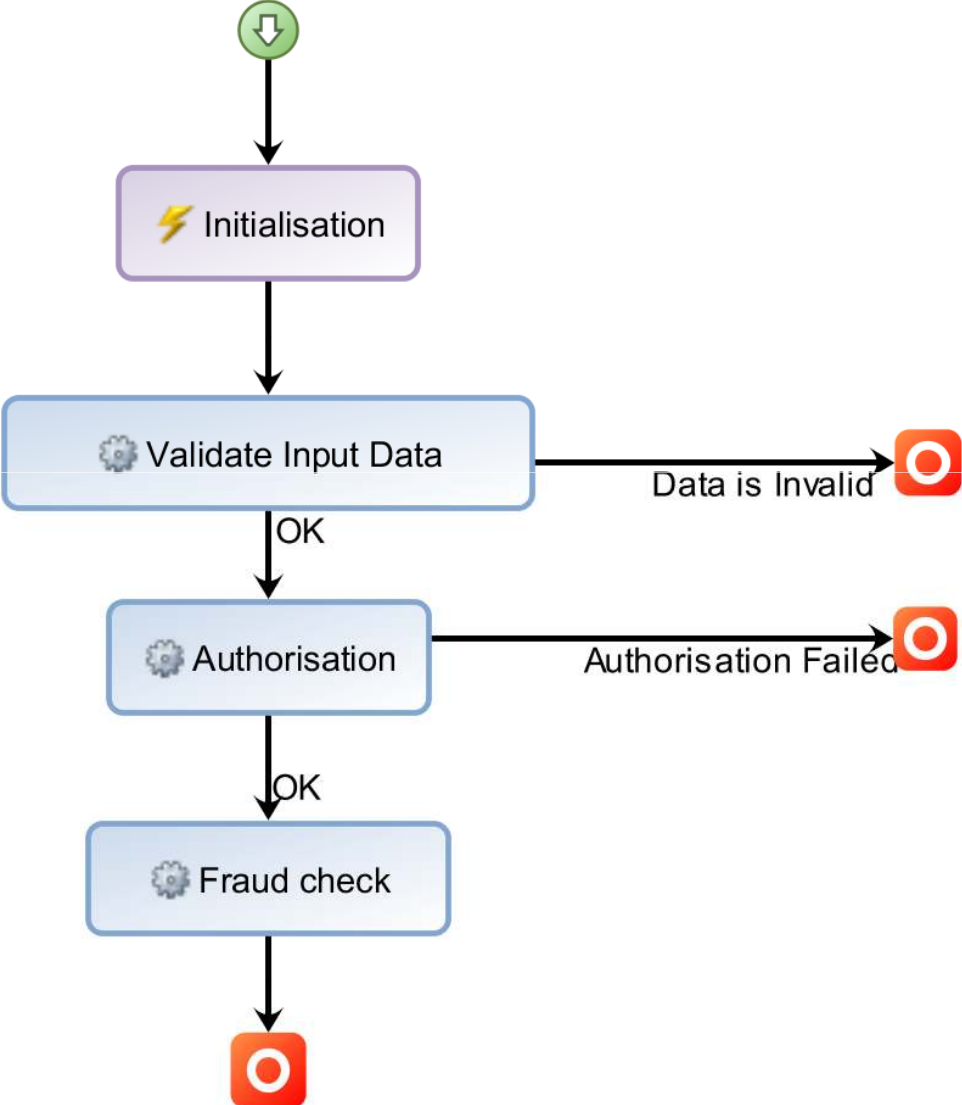
if
  the driver has completed drivers ed course
  and the number of accidents **the driver** has been involved is 0
then
  add a 2 % discount to 'Auto Quote Response' , reason: **"Good Driver Discount"** ;
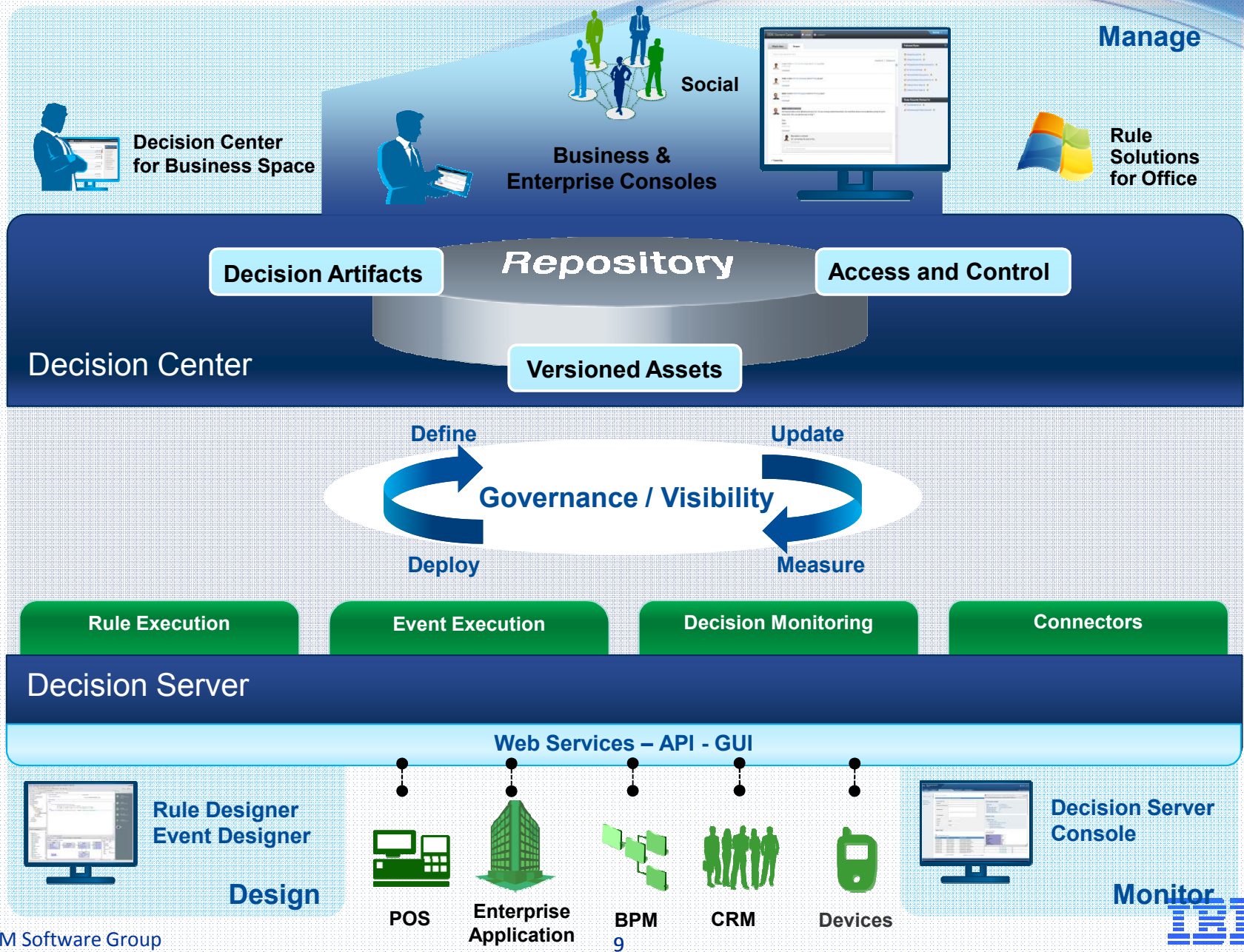
- **Decision Table Rules**

	Vehicle Value		Deductible	Base Premium
	Lower	Upper		
1			$250	$ 36
2	$ 0	$ 4,000	$500	$ 33
3			$1000	$ 23
4			$250	$ 43
5	$ 4,000	$ 10,000	$500	$ 39
6			$1000	$ 27
7			$250	$ 47
8	$ 10,000	$ 30,000	$500	$ 41
9			$1000	$ 32
10			$250	$ 52
11	$ 30,000	$ 60,000	$500	$ 49
12			$1000	$ 40
13			$250	$ 62
14	$ 60,000	$ 100,000	$500	$ 59
15			$1000	$ 48

Rule Orchestration - RuleFlow

IBM Operational Decision Manager

Manage

Decision Center for Business Space

Social

Business & Enterprise Consoles

Rule Solutions for Office

Decision Center

Decision Artifacts

Repository

Access and Control

Versioned Assets

Define

Update

Governance / Visibility

Deploy

Measure

| Rule Execution | Event Execution | Decision Monitoring | Connectors |

Decision Server

Web Services – API - GUI

Rule Designer
Event Designer

Decision Server Console

Design

POS

Enterprise Application

BPM

CRM

Devices

Monitor

IBM

Drivers for implementing the Rules logic in ODM

- **When the business/policy owners need to be able to view or change the logic**

- **When the logic changes frequently**

- **When the rule logic is complex**

- **When you wish to reduce on-going maintenance costs**

- **When there are large numbers of rules**

- **When multiple versions of the logic are required for different date/time/regional/etc. criteria**

- **When the decision services are re-used across systems**

- **When you need to host multiple decision services together**

ODM 8.5.1 Fastest Performance

POJO RES Performance
Sequential execution on JAVA XOM
V8.5.0 Vs V8.5.1.0
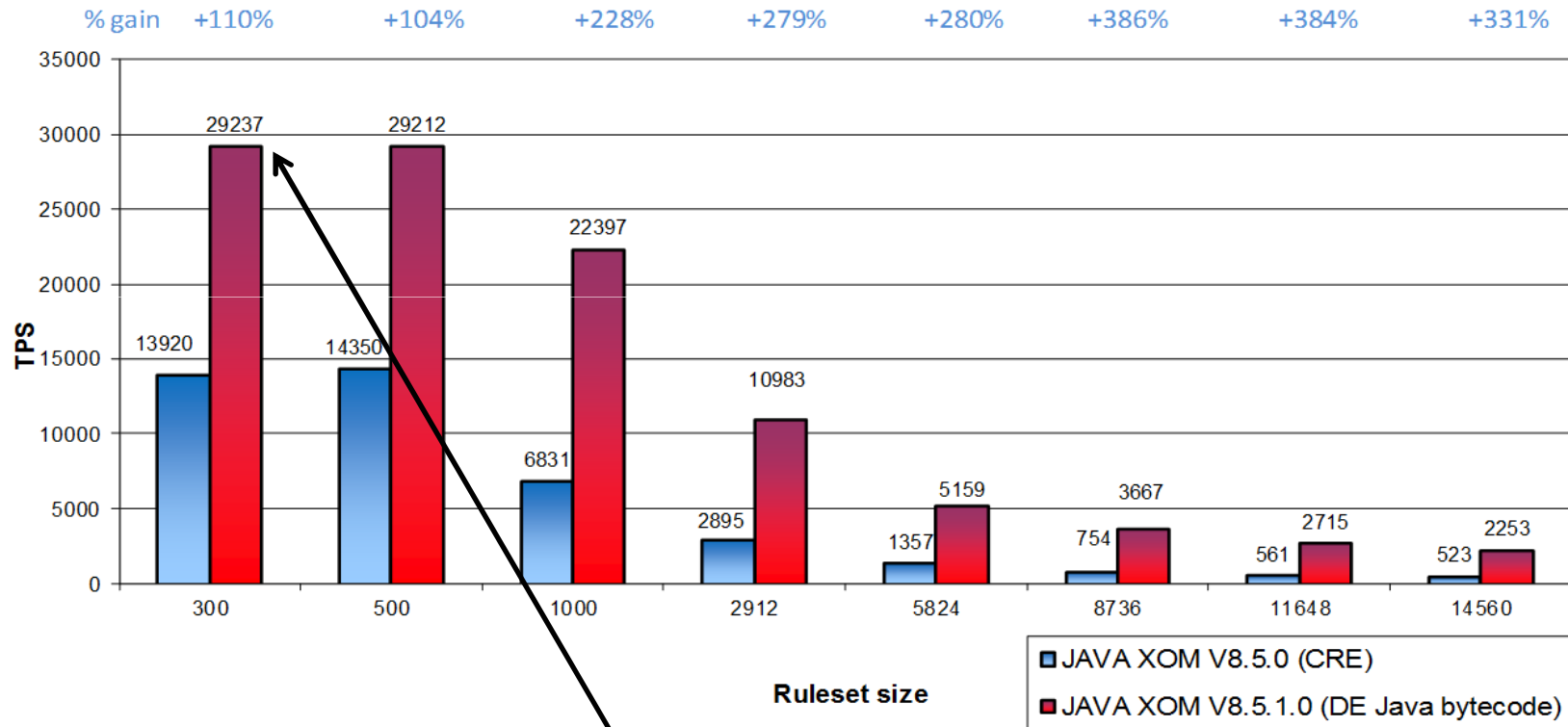
8 x 70 PVU cores => ~ 3,654 executions per second per core

ODM and IBM Integration Bus (IIB 9)

First Time user of decisions with Broker
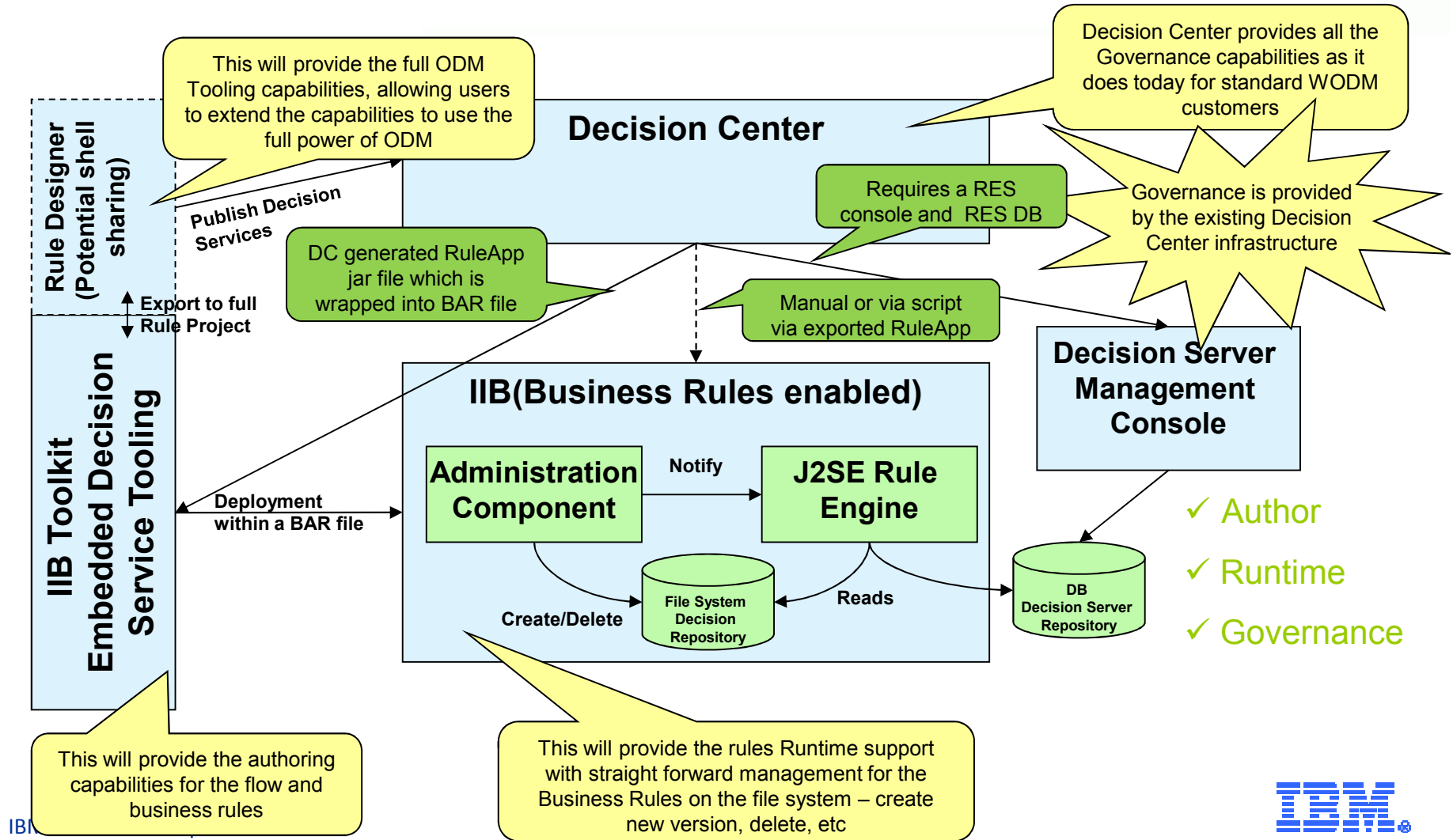## *Existing Broker customer, new ODM customer*

- We want to provide an out of the box experience where they only need to install IIB and its tooling to get started

- As the user grows their experience and requirements, Decision Center and Decision Server will provide these capabilities. We need to ensure there is a straight forward maturity flow.

This will provide the authoring capabilities for the flow and business rules

There is no Governance within this solution this would be a maturity step and require Decision Center

IIB Toolkit Embedded Decision Service Tooling

Deployment within a BAR file

IIB (Business Rules enabled)

Administration Component — Notify → **J2SE Rule Engine**

Create/Delete

File System Decision Repository

Reads

This will provide the rules Runtime support with straight forward management for the Business Rules on the file system – create new version, delete, etc

✓ Author

✓ Runtime

✗ Governance

Maturing First Time user of rules with Broker
Existing ODM and Broker

- As the users usage starts to mature they want to allow Business Users the ability to manage these decisions. This will introduce Decision Center as the Governance repository into the solution and the ability to use Rule Designer to enhance the Rules with the full array of functionality.

This will provide the full ODM Tooling capabilities, allowing users to extend the capabilities to use the full power of ODM

Decision Center provides all the Governance capabilities as it does today for standard WODM customers

Decision Center

Requires a RES console and RES DB

Governance is provided by the existing Decision Center infrastructure

Rule Designer (Potential shell sharing)

Publish Decision Services

DC generated RuleApp jar file which is wrapped into BAR file

Manual or via script via exported RuleApp

Decision Server Management Console

Export to full Rule Project

IIB Toolkit Embedded Decision Service Tooling

IIB(Business Rules enabled)

Administration Component	Notify	**J2SE Rule Engine**

Deployment within a BAR file

Create/Delete

File System Decision Repository

Reads

DB Decision Server Repository

✓ Author

✓ Runtime

✓ Governance

This will provide the authoring capabilities for the flow and business rules

This will provide the rules Runtime support with straight forward management for the Business Rules on the file system – create new version, delete, etc

IBM

Content assisted editor to author business rules
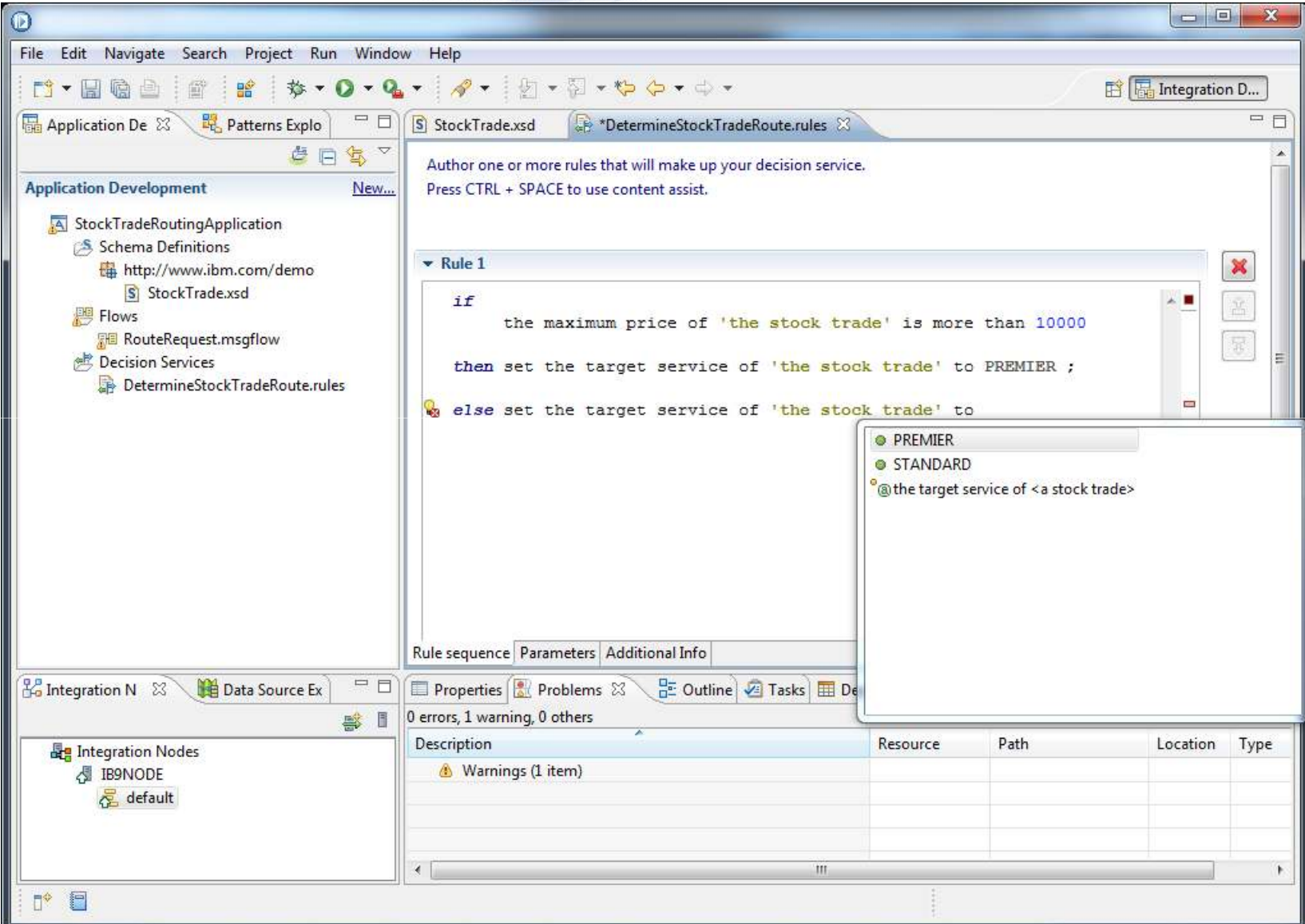
Decision services can contain multiple rules…
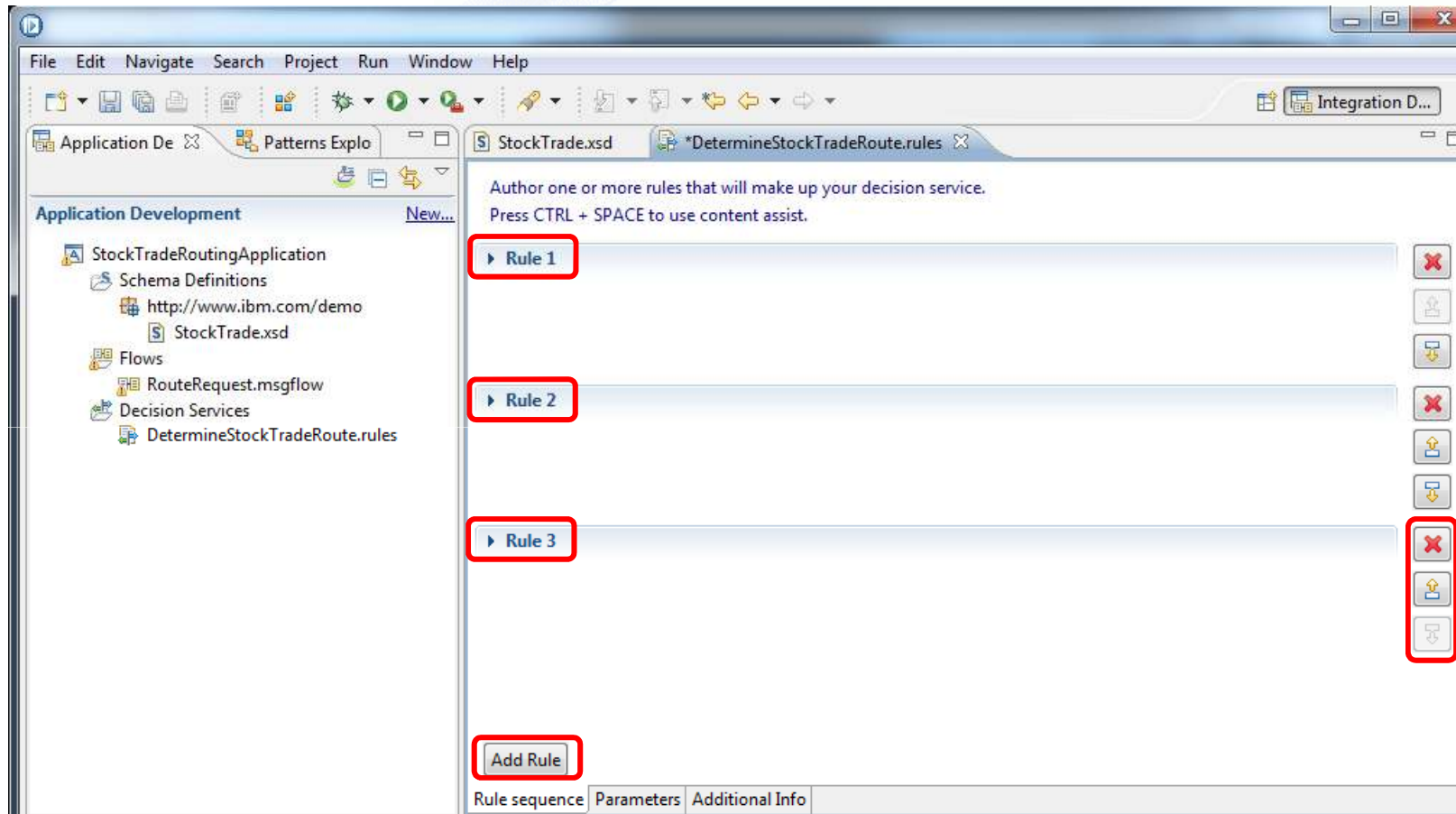
ODM and IBM Business Process Manager (BPM 8.5.x)

ODM Syntax "Process Rules" included in IBM BPM 8.x
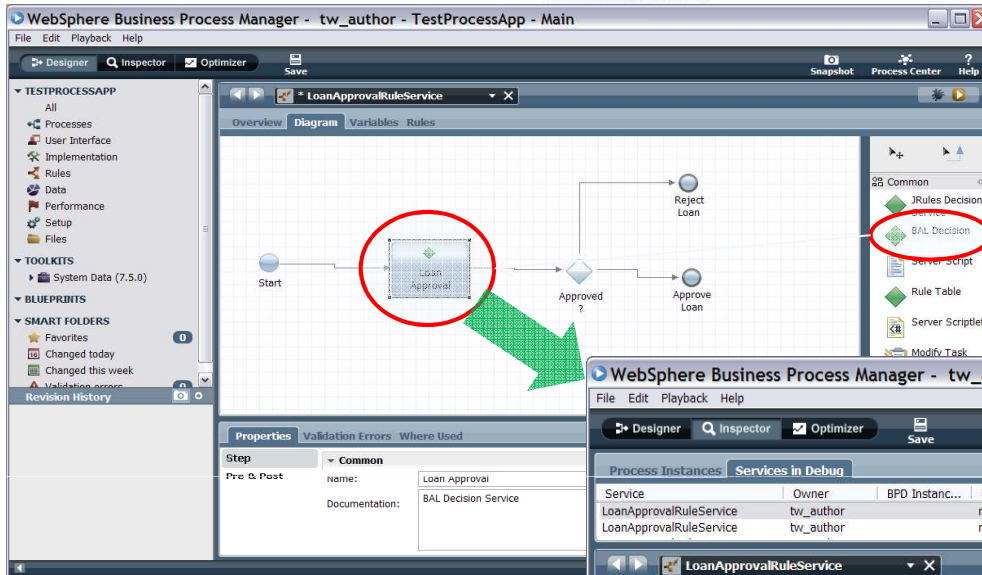
Same Rule Language & same Intellirule Editor as IBM ILOG JRules

Embedded JRules engine

Export ruleset as a Rule Project to move from embedded rules to external Decision Service callable by other services and with access to other external data
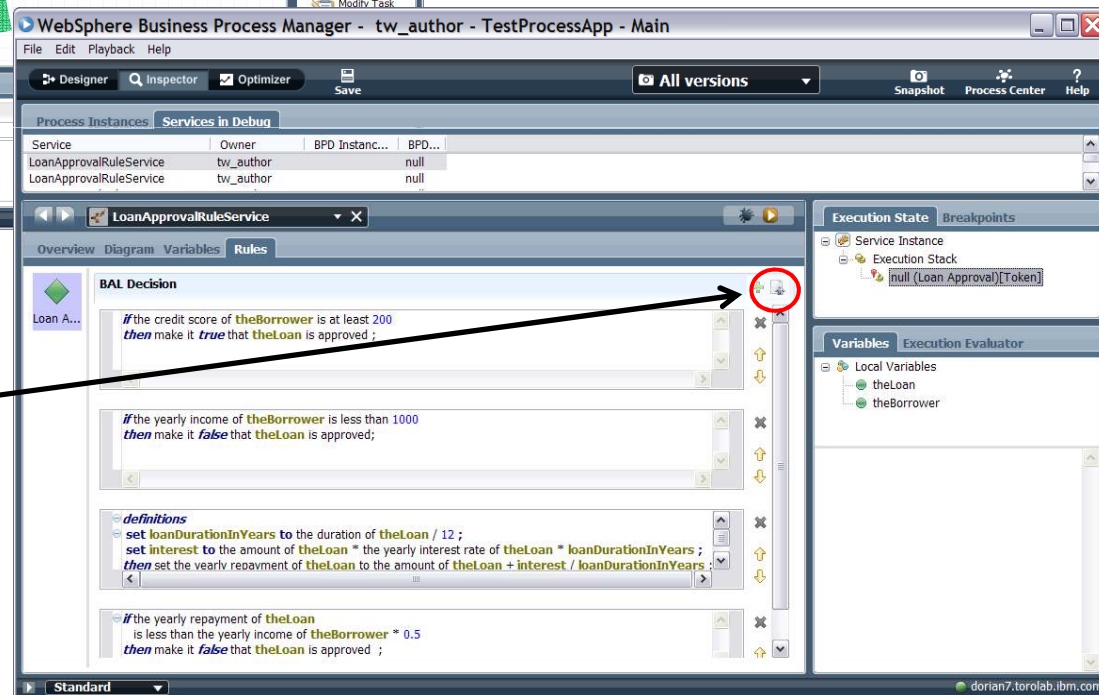
Drivers when to externalise the Rules from the Process

- **Rule versioning happening more frequently than process changes**

- **Rules need to be changed by business users**

- **Decision Services to be shared by applications outside of the process**

- **Large numbers of rules or the rules are complex**

- **When you need finer grained control over who can make what changes to the rules**

- **Rule language extensions or simplification required**

BPM 8.x - ODM Connector

Potential drawbacks of externalising the rules

- Addition of external call overhead to processing time

- Additional complexity of solution

- Another potential area for failure

- None of these are major and are removed with good architecture

- And the benefits far outweigh the drawbacks

DEMONSTRATION

Building the Decision Service in IBM ODM

and calling the service from IBM BPM

ODM 8.5 Rules Components

Rule Designer
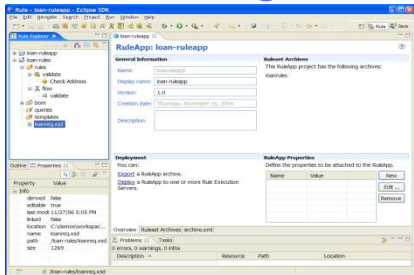
Eclipse-based Rule IDE
Rule design & development

Decision Center Enterprise Console
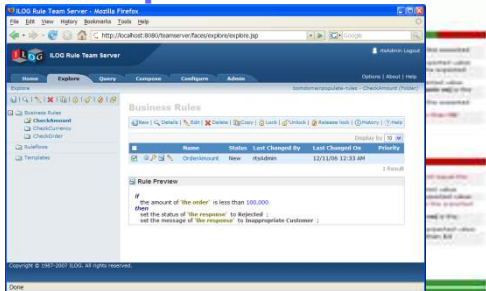
Full featured Web-based console
for Rule Authoring & Testing

Decision Center Business Console
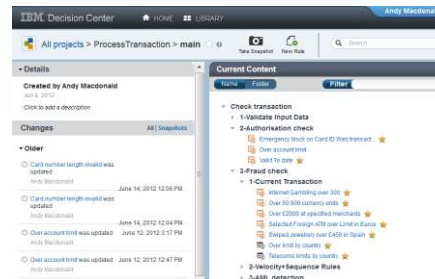
Simplified, Collaborative
Web-based Rule Authoring

Rule Solutions for Office

Offline Rule Authoring

Sync

Deploy rules

Deploy rules

Rule Repository

Sync

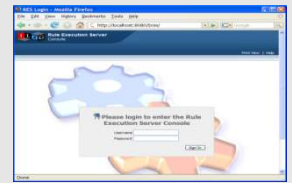**Decision Warehouse**

Audit trail of decisions

Runtime environment
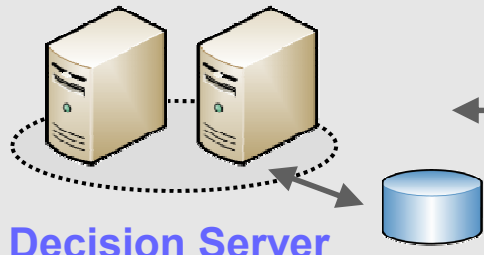
Decision Server
Single node or cluster (J2SE & J2EE compliant)

Server Console

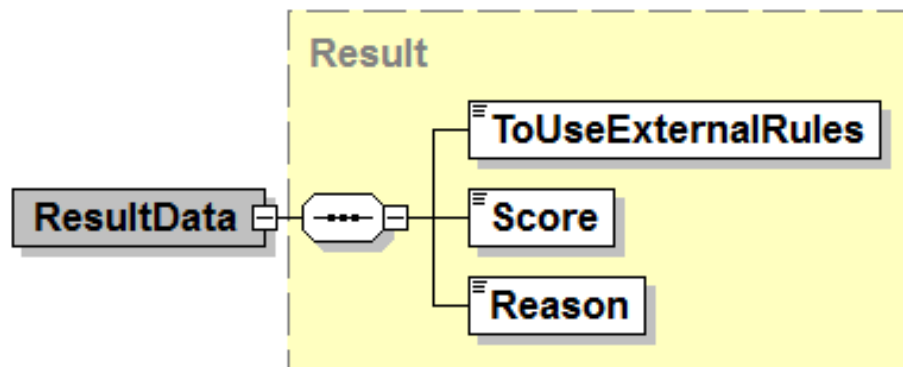*Web-based admin console to monitor & control rule execution*

A Rules based Decision Service to decide when to externalise the rules ☺

- ## Simple Types IN
  - ChangesPerYear   INT
  - NumRules   INT
  - RulesAreComplex   BOOLEAN

- ## Schema / XML OUT

Summary

Summary

- **Use the built-in rules capability if you can**

- **Use external rules when built-in are insufficient**
  - Rule versioning happening more frequently than process/system changes
  - Rules need to be changed by business users
  - Decision Services to be shared by applications outside of the process
  - Large numbers of rules or the rules are complex
  - When you need permission/governance/audit of rules changes
  - Rule language extensions or simplification required

- **Many ways to integrate ODM**
  - Web Services
  - Java (Embedded / POJO / J2SE / J2EE)
  - REST
  - Connectors

- **Native ODM node for IIB**

Questions and Answers