



# System z Decision Management

*Where business rules and events are transformed*



# Agenda

- ▶ Operational Decisions: the why and the what
- ▶ WebSphere Operational Decision Management: the how
- ▶ Synergy with decision management
- ▶ Adoption
- ▶ Operational Decision Management use cases
- ▶ Next steps

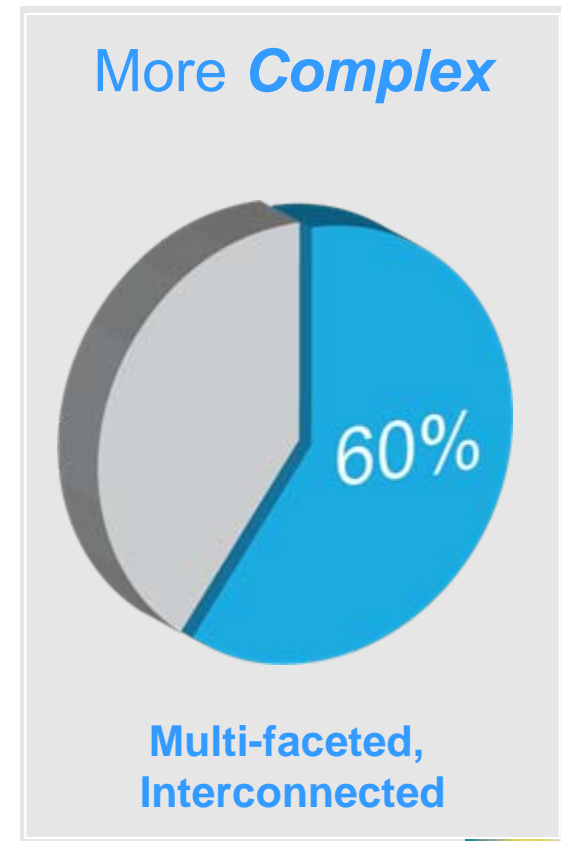
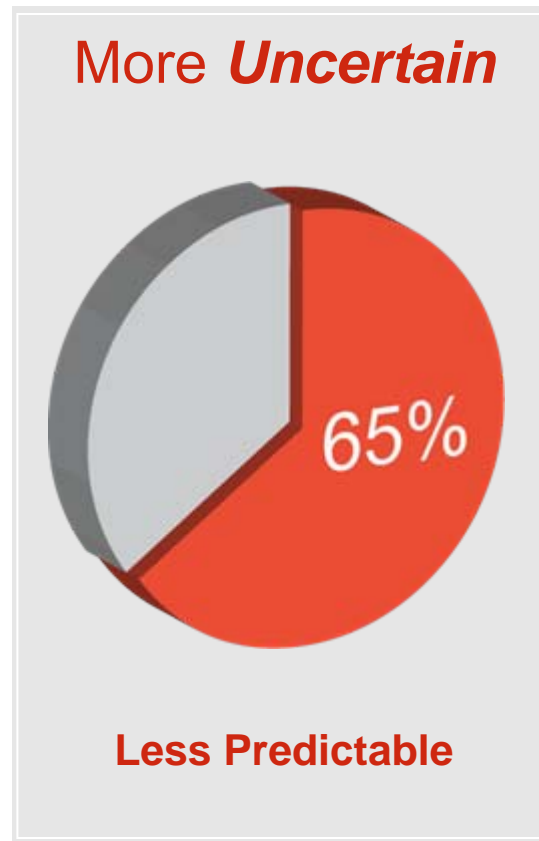
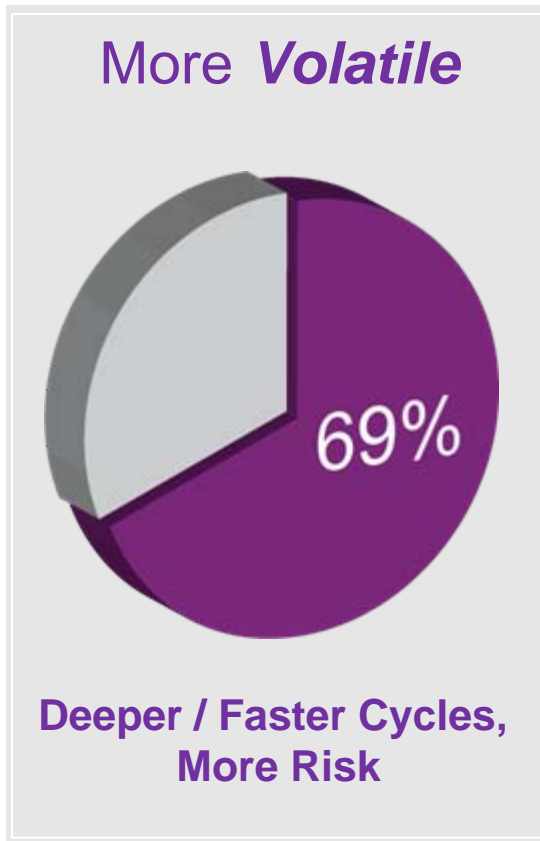
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# The business environment is increasingly dynamic

*CEOs expect change to be more frequent and less predictable*

To what extent is the economic environment different?



Percent of CEOs who answered "**To a large or very large extent**"

Source: IBM CEO Study 2010



## Why better decisions are critical to success

*Accurate, real-time decisions improve business performance and results*



Identify opportunities to *increase profitability*



Enforce consistency to *ensure compliance*



Leverage information to *manage risk*

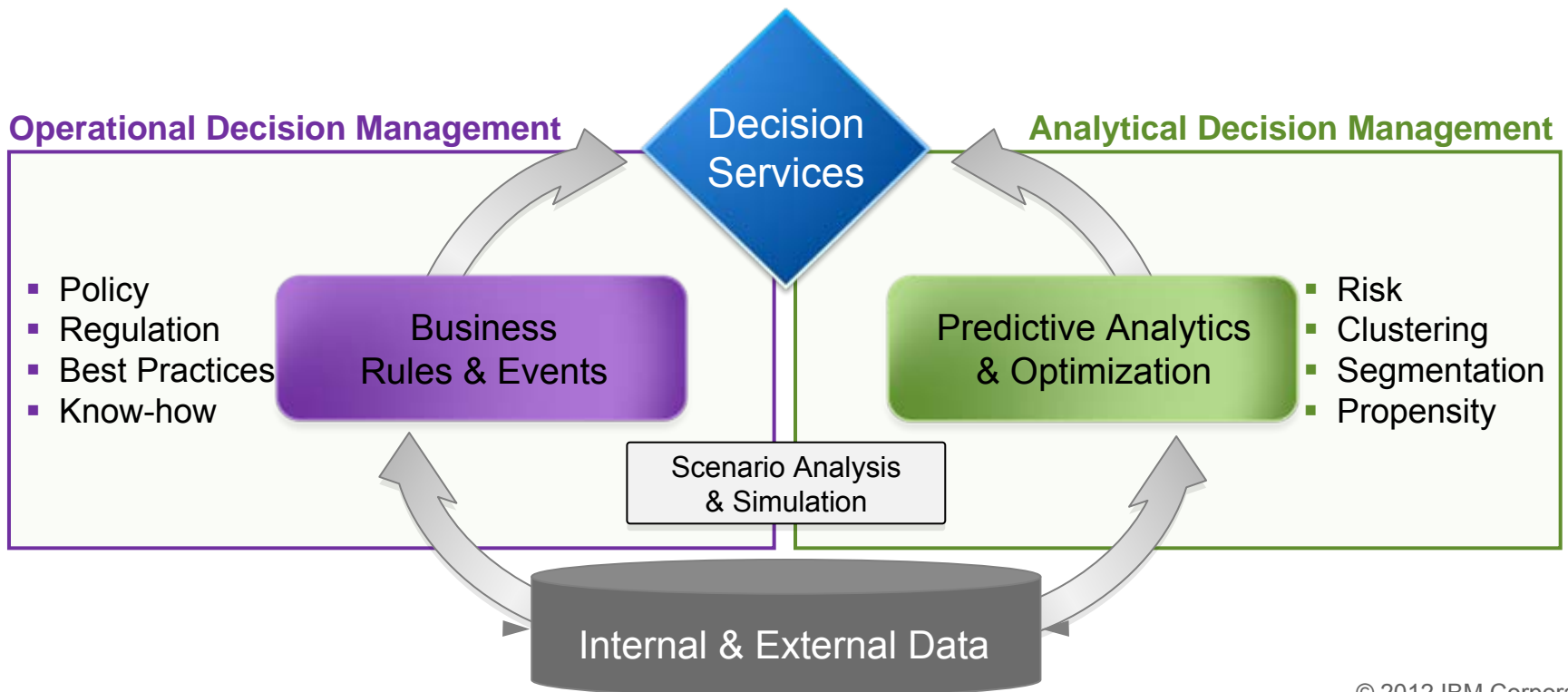
*“Decisions are what make strategy real and drive results and performance against metrics... decisions made about how to interact with partners, suppliers, customers, employees.”*

*James Taylor, “Becoming a Decision-centric Organization,” 2011*

# What is Decision Management?

Decision Management is a business discipline, supported by **operational** and **analytics** software, that enables organizations to automate, optimize and govern repeatable business decisions to improve the value of customer, partner and internal interactions.

Business Processes, Applications & Solutions



# Operational Decision Management

## Business Rules

Primarily implements a decision model - given a snapshot view of data, determines best course of action at a specific point in a process or application

Main purpose is to automate a decision based on a combination of factors (business policies, regs., best practices)

If the **Passenger** is a **gold frequent traveler** and the **flight distance** is more than 4000 miles and the **flight destination** is in Europe or Asia Then Add 10.000 points to the fidelity card of the **Passenger**

## Business Events

Primarily implements a time-based pattern detection model – correlating events as data is in motion

Main purpose is to determine what of interest is transpiring and coordinate one or more responses by other systems or generate alerts to people

If more than 2 **customer withdraws in an ATM** are done **in the same day** and the 2 ATMs are from 2 foreign countries Then **Investigate possible fraud**  
Reduce to cash redraw max amount to 100\$

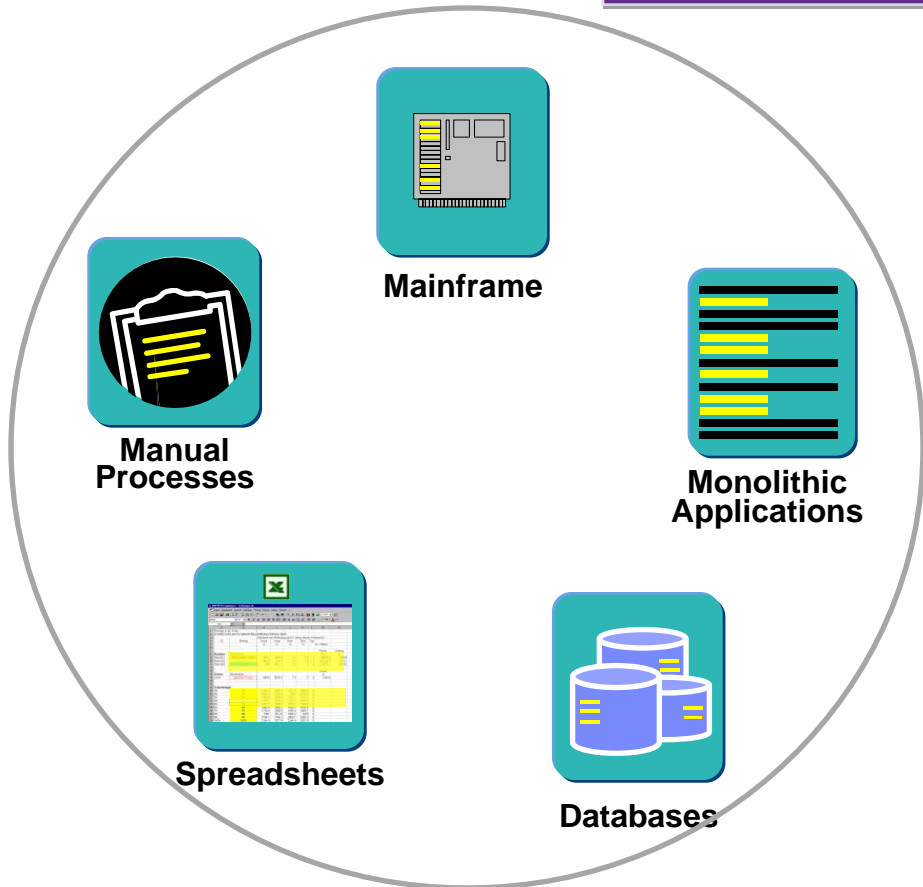


**Gartner** characterizes Rules and Complex Event systems as complementary notions. The combination being required to implement intelligent decision management programs.

# Business Rules in organizations

Can get quite large

Are scattered everywhere



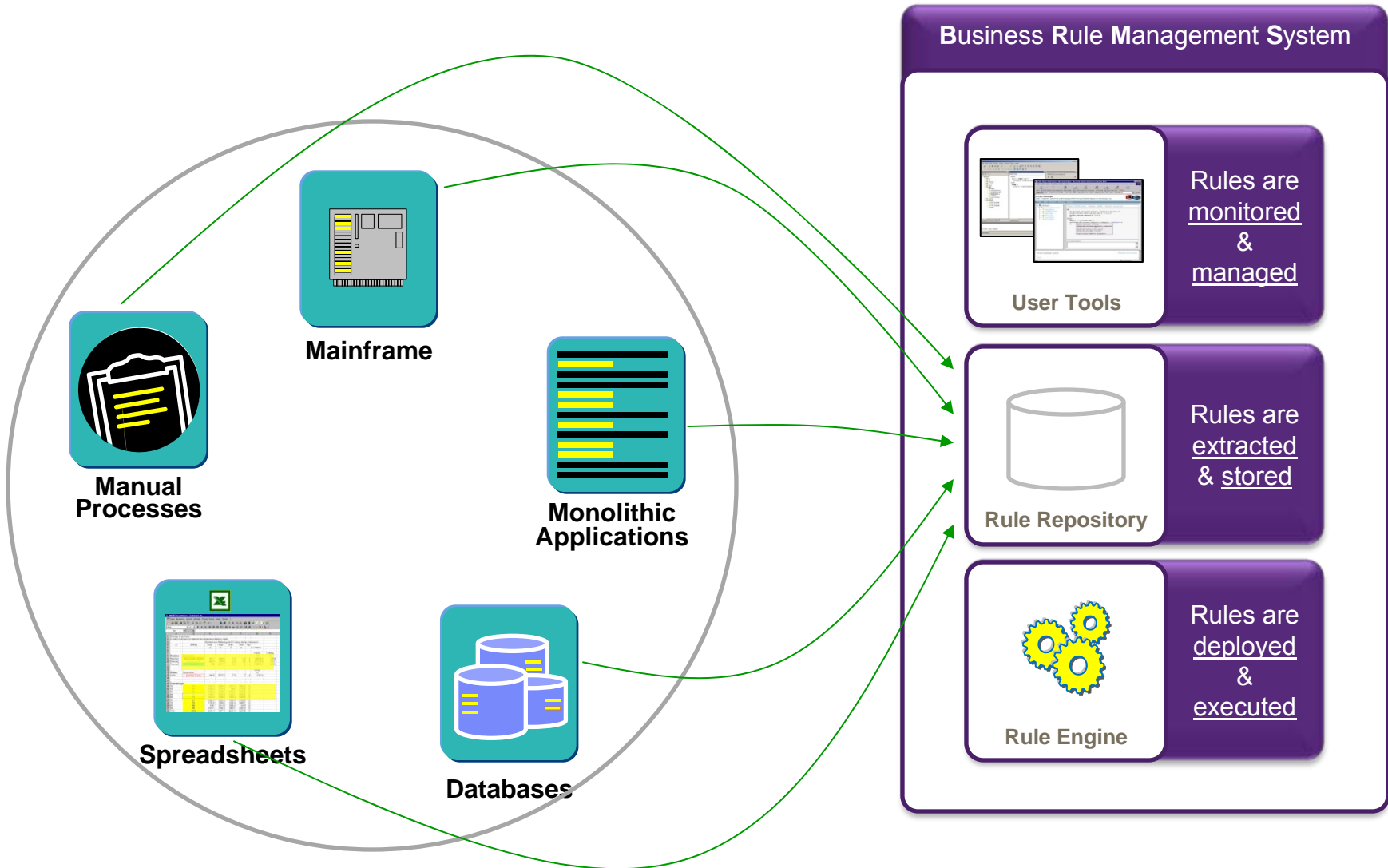
Are subject to change

## Challenges for a Change Request

- **Changes are costly, resource & time-intensive**
  - Rules are hidden in code
  - Most changes have to be programmed – costly
- **Lack of consistency**
  - No central management of rules
  - No reuse of rules
- **Gap between business analysts & IT administrators**
  - Business rules knowledge fades over time
- **Lack of auditability**
- **No easy way to test/simulate the change**



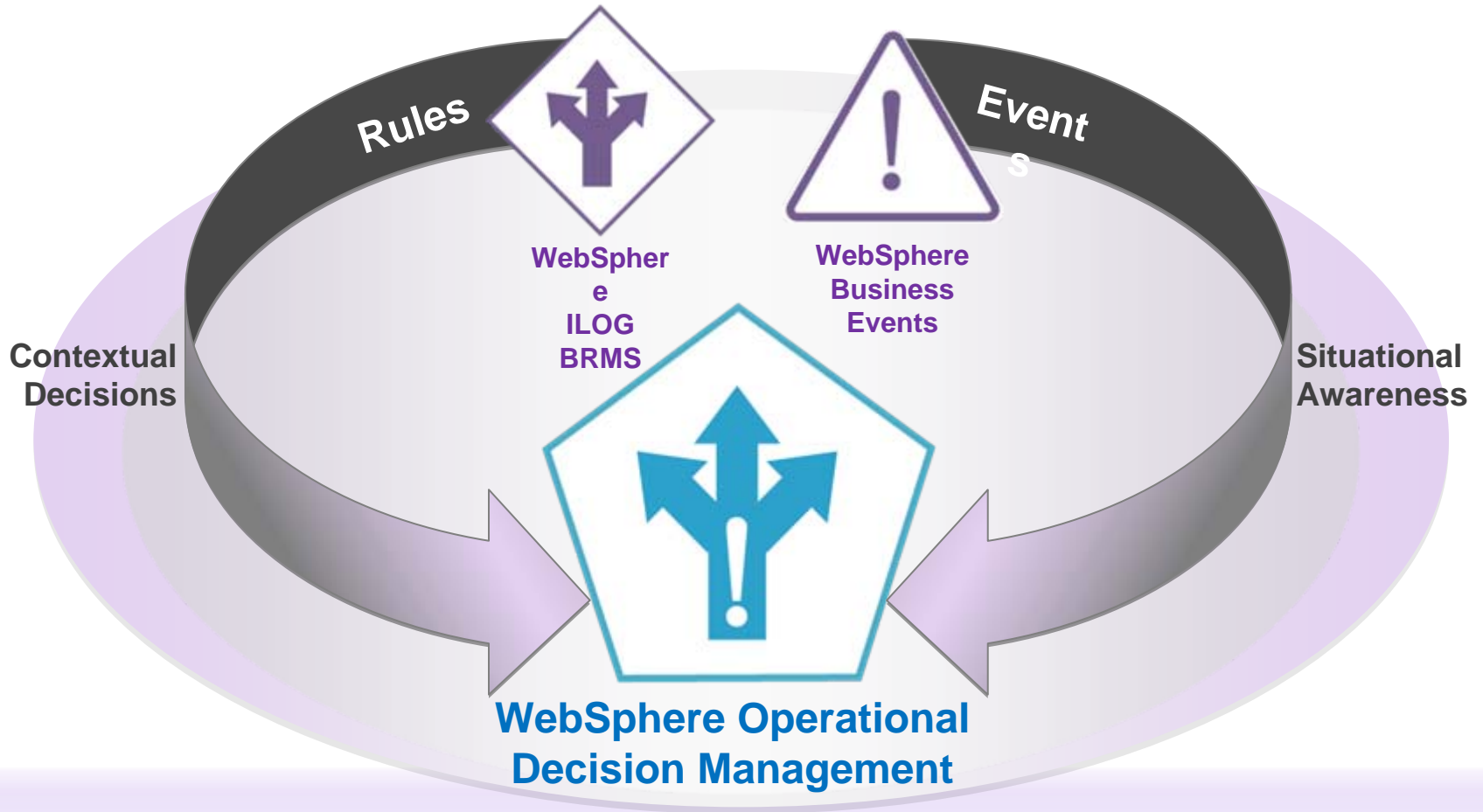
# Business Rule Management System



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# Introducing WebSphere Operational Decision Management

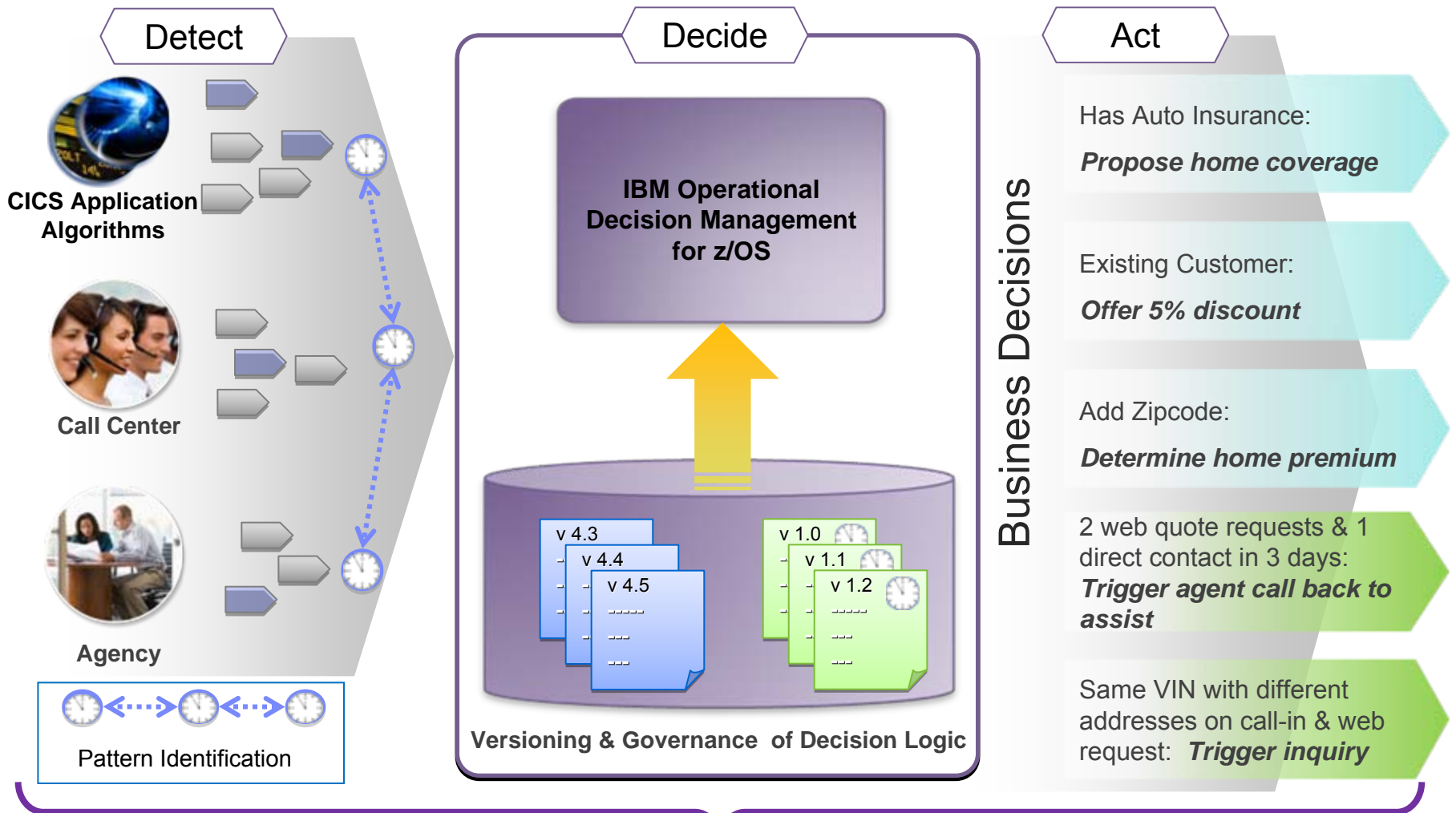


*Your business decisions.*

Made by your business *experts*.

Delivered in *real-time* by technology.

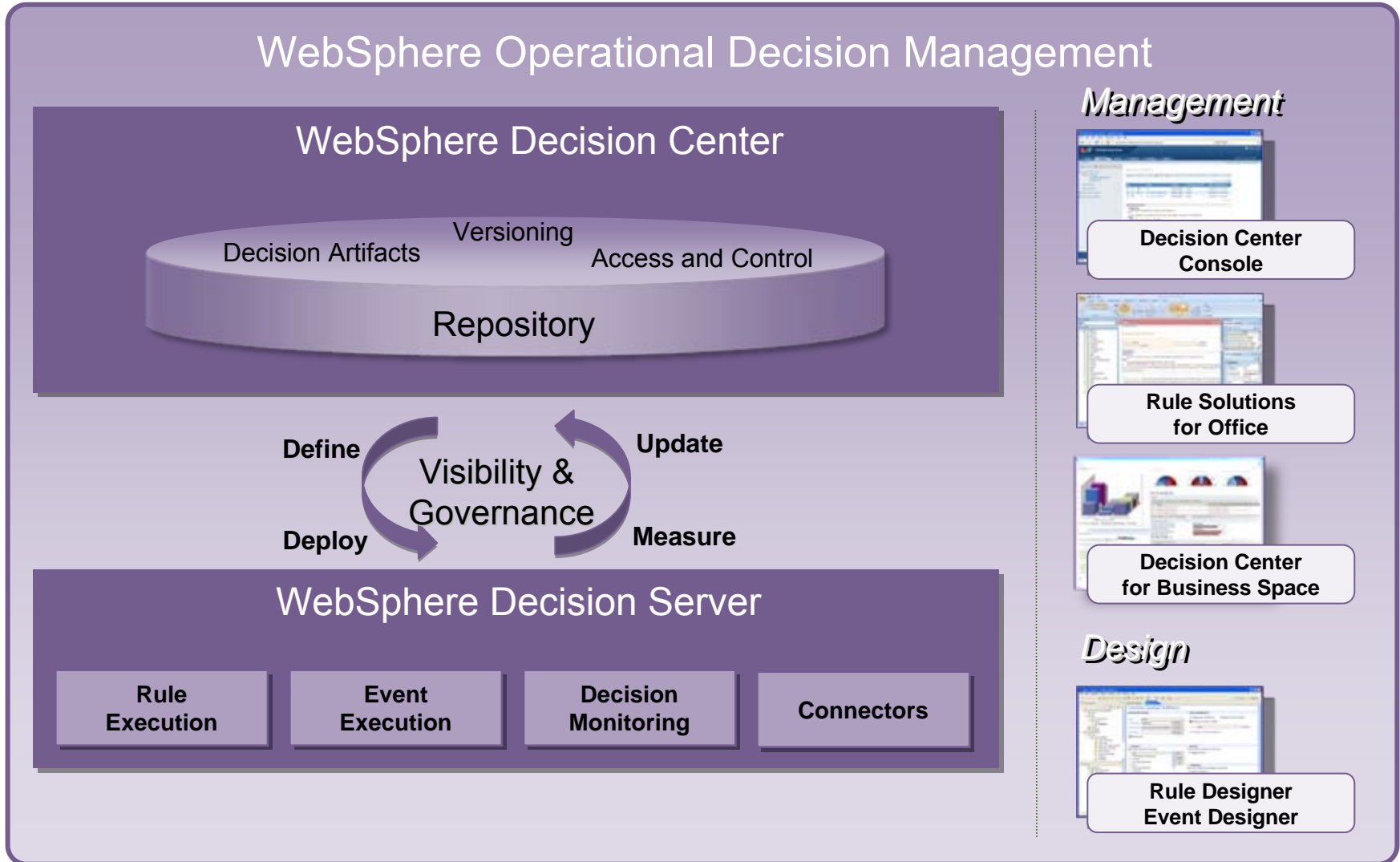
# Putting it Together – Business Events and Business Rules



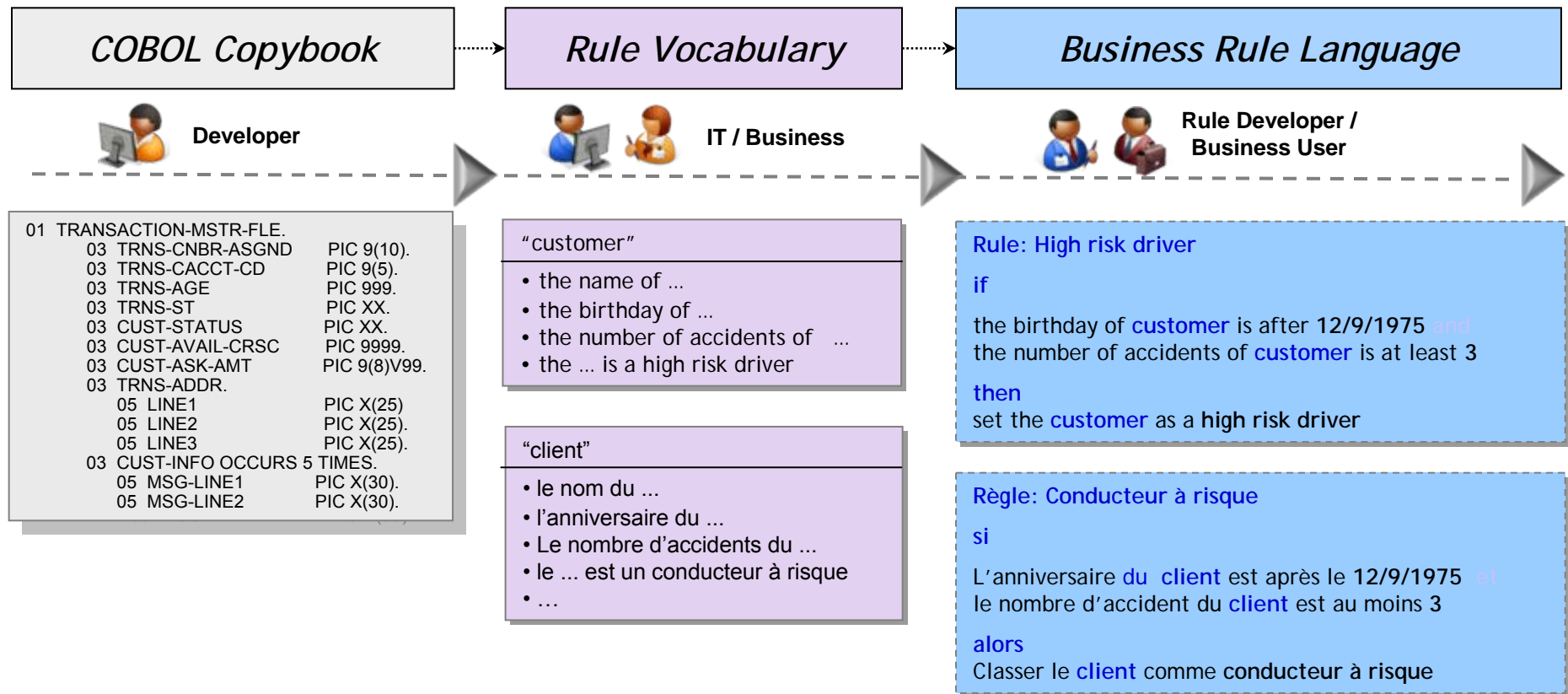
## IBM WebSphere Operational Decision Management for z/OS

*Insurance use case: Customer acquisition*

# WebSphere Operational Decision Management Components



# Business Decisions stated in business language



- Customizable vocabulary specific to your organization, industry, application (etc.)
- Supports language localization
- Integrates with external data sources (e.g. list of countries)
- Drop down lists for customized domain data
- Templates facilitate new rule and event creation
- Empower business experts to manage and validate decision logic, eliminating delays in business

# Rule Designer

## Decision Tables

	Grade	Amount of loan <span style="color:red">✖</span>		Insurance required	Insurance rate
		Min	Max		
0	A	< 100,000		false	<span style="color:red">⊘</span>
1		100,000	300,000	true	0.001
2		300,000	600,000	true	0.003
3		≥ 600,000		true	0.005
4	B	< 100,000		false	<span style="color:red">⊘</span>
5		100,000	300,001	true	0.0025
6		300,000	600,000	true	0.005
7		≥ 600,000		true	0.0075
8	C	< 100,000		true	0.0035
9		100,000	300,000	true	0.006
10		300,000	600,000	true	0.0085
11		≥ 600,000		true	0.0145
12	Otherwise			true	0.022

**Actions**

**Built-in Gap/Overlap checking**

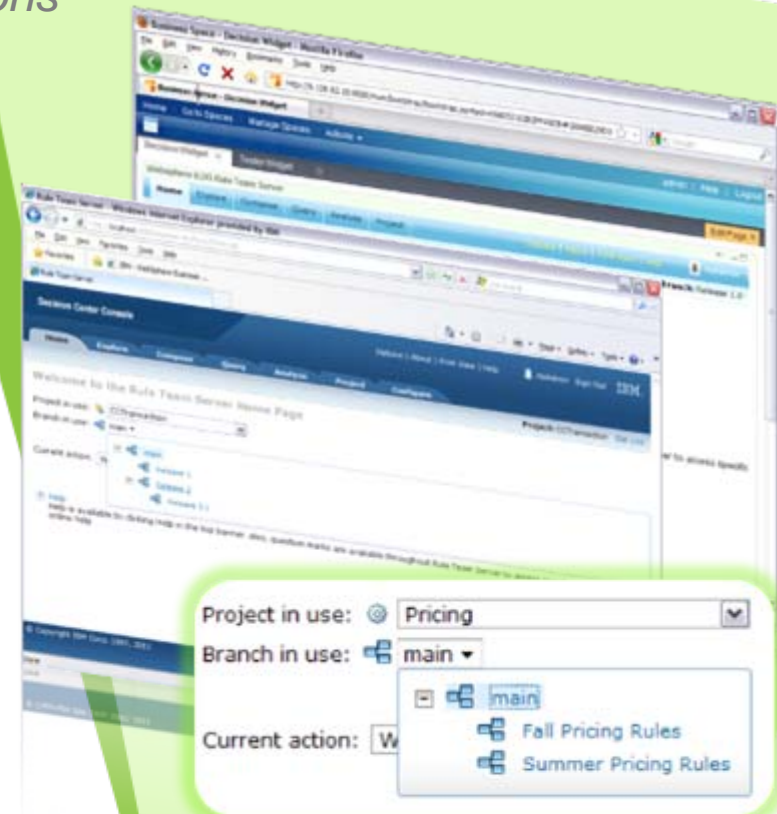
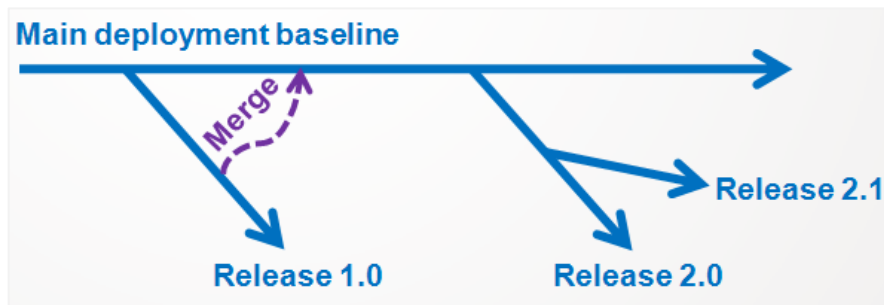
**Automatic Rule generation**

*if*  
 all of the following conditions are true :  
 - the loan grade in 'the loan report' is "C"  
 - the amount of 'the loan' is at least 600000 ,  
*then*  
 set insurance required in 'the loan report' to true ;  
 set the insurance rate in 'the loan report' to 0.0145 ;

# Multiple release management

*Greater flexibility for deploying business decisions*

- Enable business users to make changes to a deployed rule application without interfering with work they are doing on an upcoming release
- Merge and diff between releases



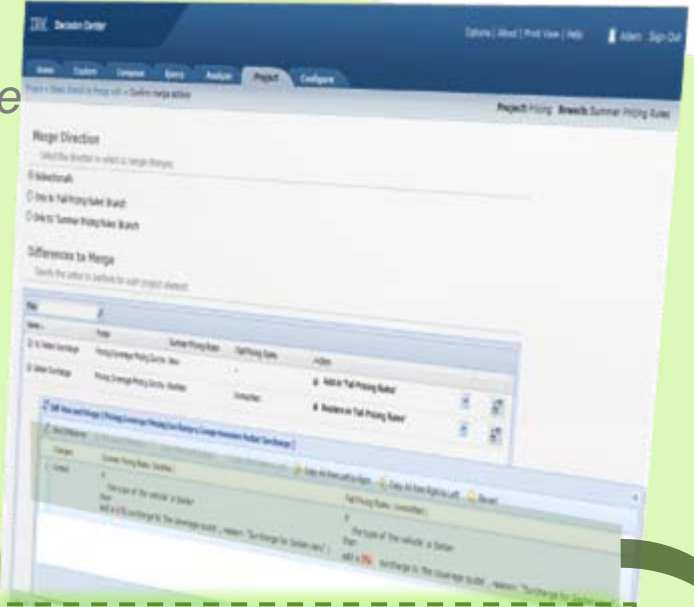
*Easily implement changes in distinct versions and better control how to merge them across different releases*



# Multiple release management visual support

*Improving ease and confidence of managing change*

- Detailed **side-by-side graphical** difference highlights between releases
- **Multi-directional** merge from one release to another



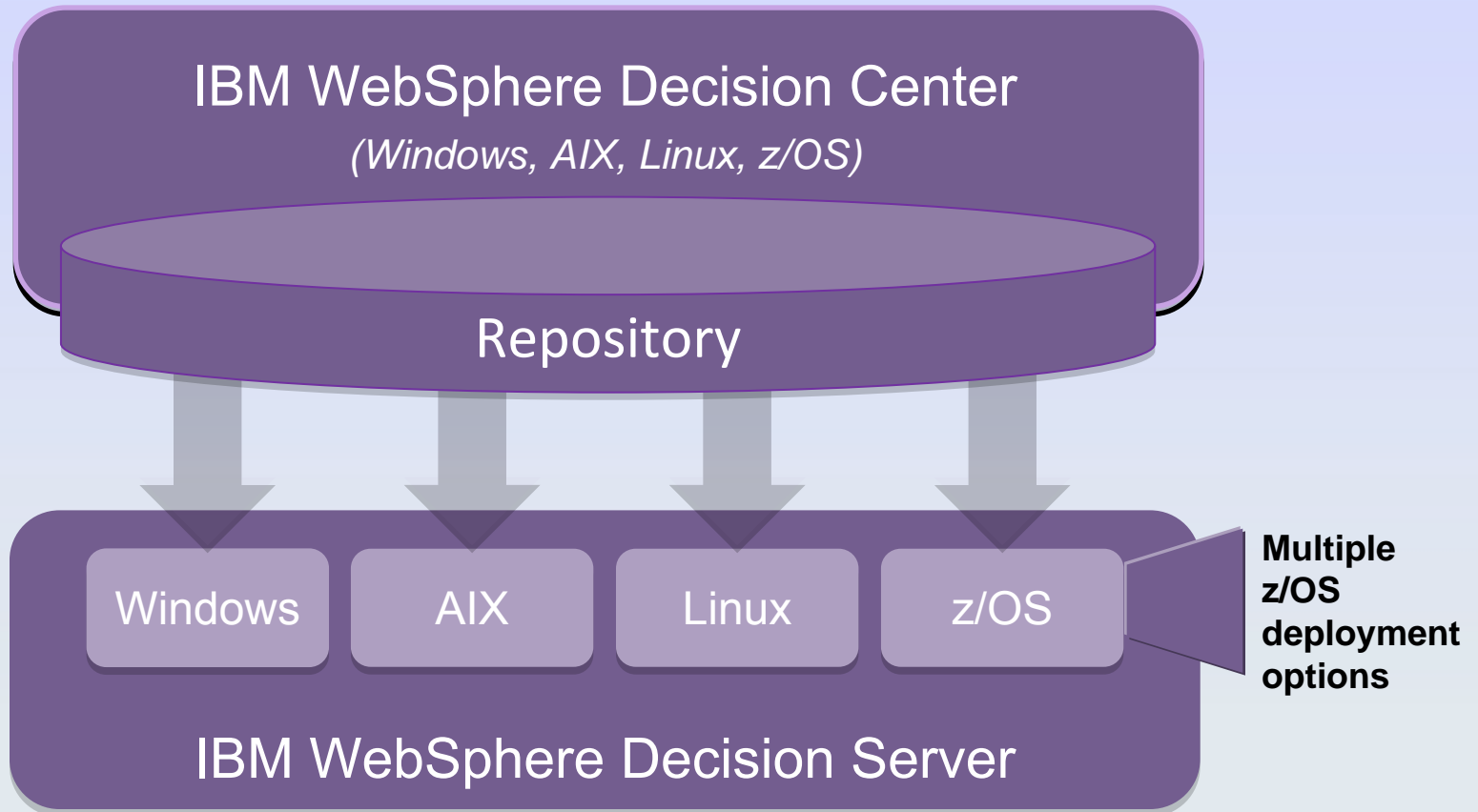
Previous Difference | Copy from Left to Right | Copy from Right to Left | **Copy All from Left to Right** | Copy All from Right to Left

Summer Pricing Rules ( Modified )	Fall Pricing Rules ( Unmodified )
if the type of the vehicle' is Sedan then add a <b>4 %</b> surcharge to 'the coverage quote' , reason: "Surcharge for Sedan cars" ;	if the type of 'the vehicle' is Sedan then add a <b>3%</b> surcharge to 'the coverage

*Visually see and understand differences across releases and decide accordingly on how to perform merge between them*

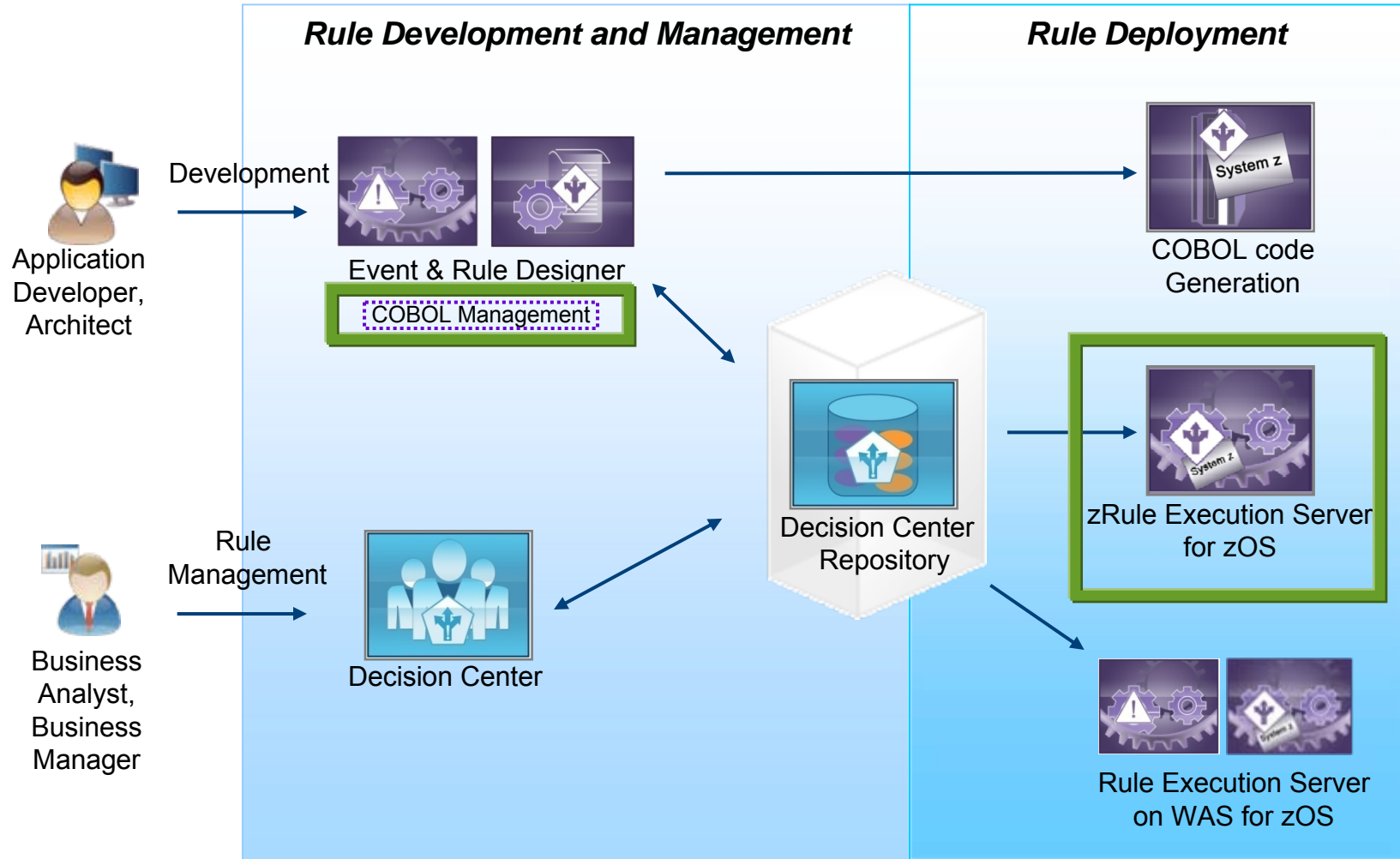
# IBM WebSphere Operational Decision Management

Leverage a wide range of platforms to meet the varying needs of enterprise architectures



# Decision Server for zOS

*Business rules execution options*



# Operational Decision Management on System z

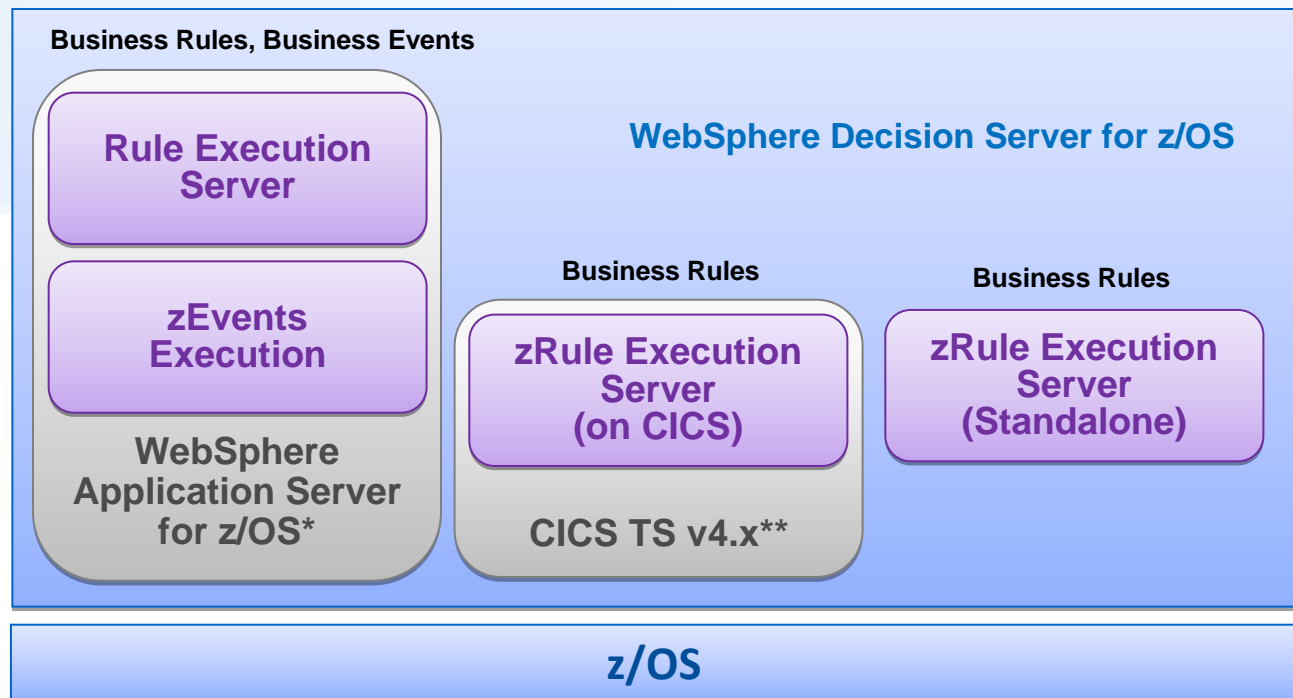
## *Runtime options*

Decisions can be invoked from existing CICS and batch applications

Runtime support for COBOL data types

Flexible runtime deployment to fit any System z environment:

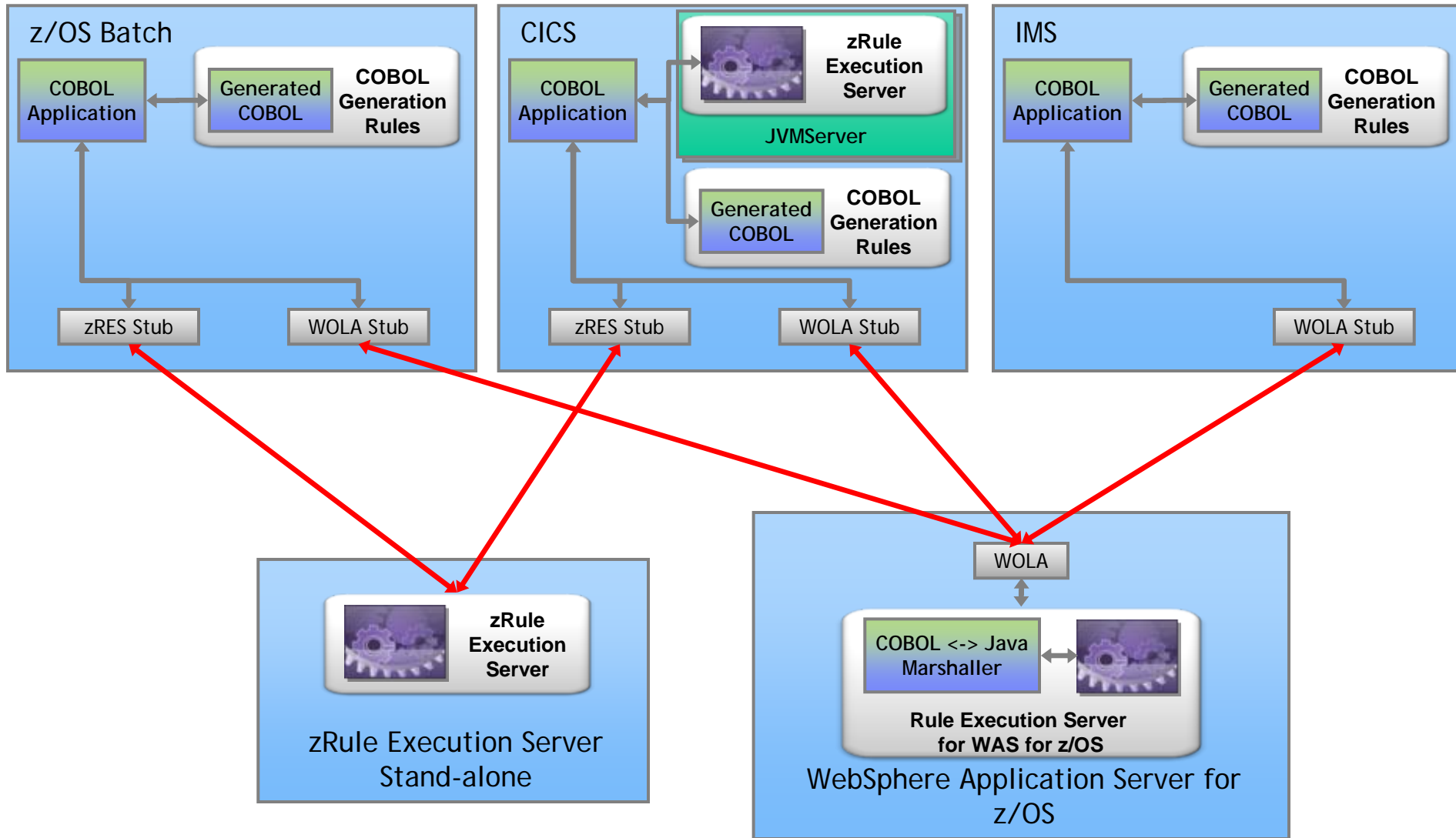
- Deployed on WebSphere Application Server for z/OS
- Deployed on CICS TS 4.x (JVM server environment)
- Deployed standalone to z/OS



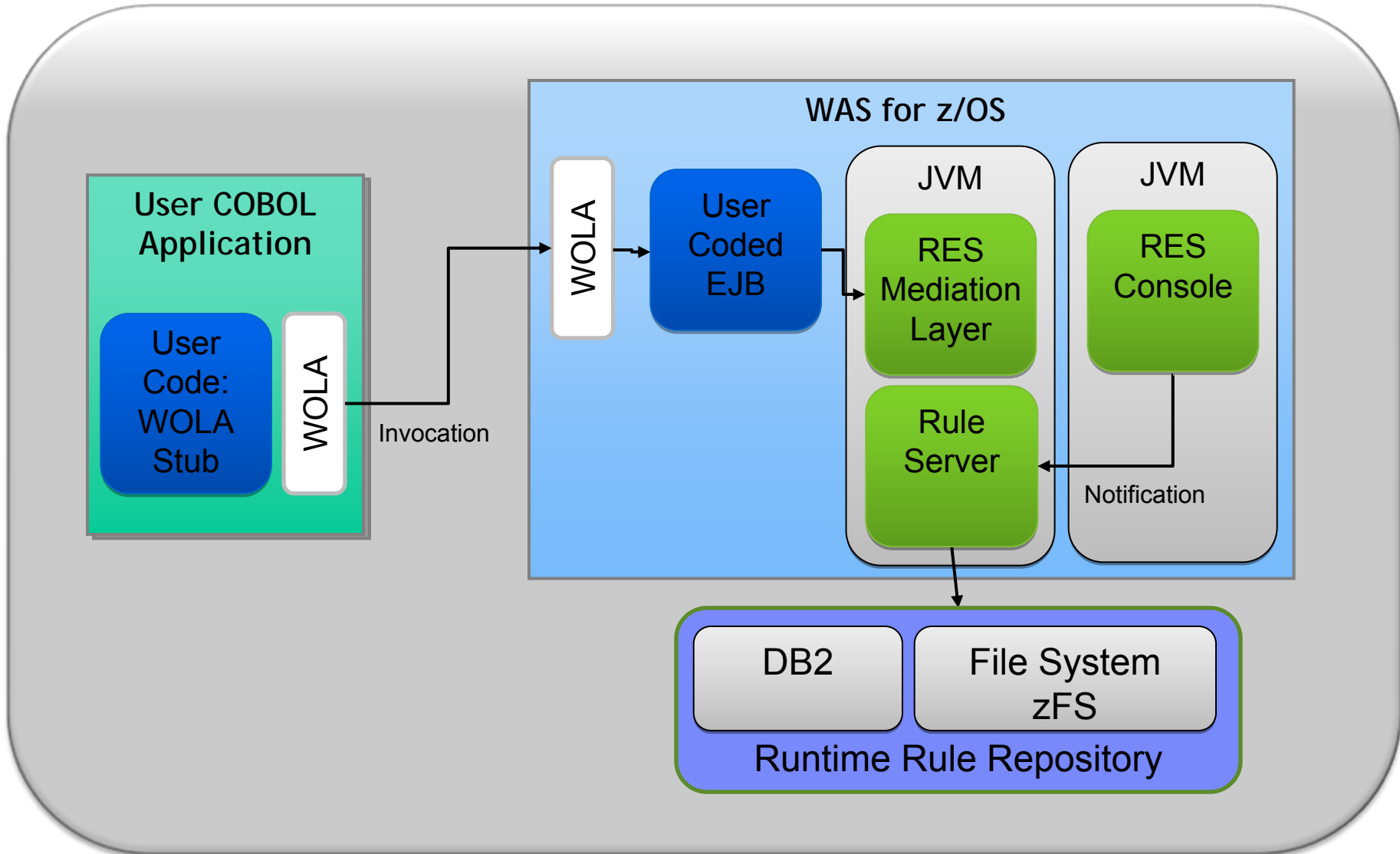
\* WAS for z/OS OEM entitlement included with Decision Server

\*\* CICS Transaction Server licenses purchased separately

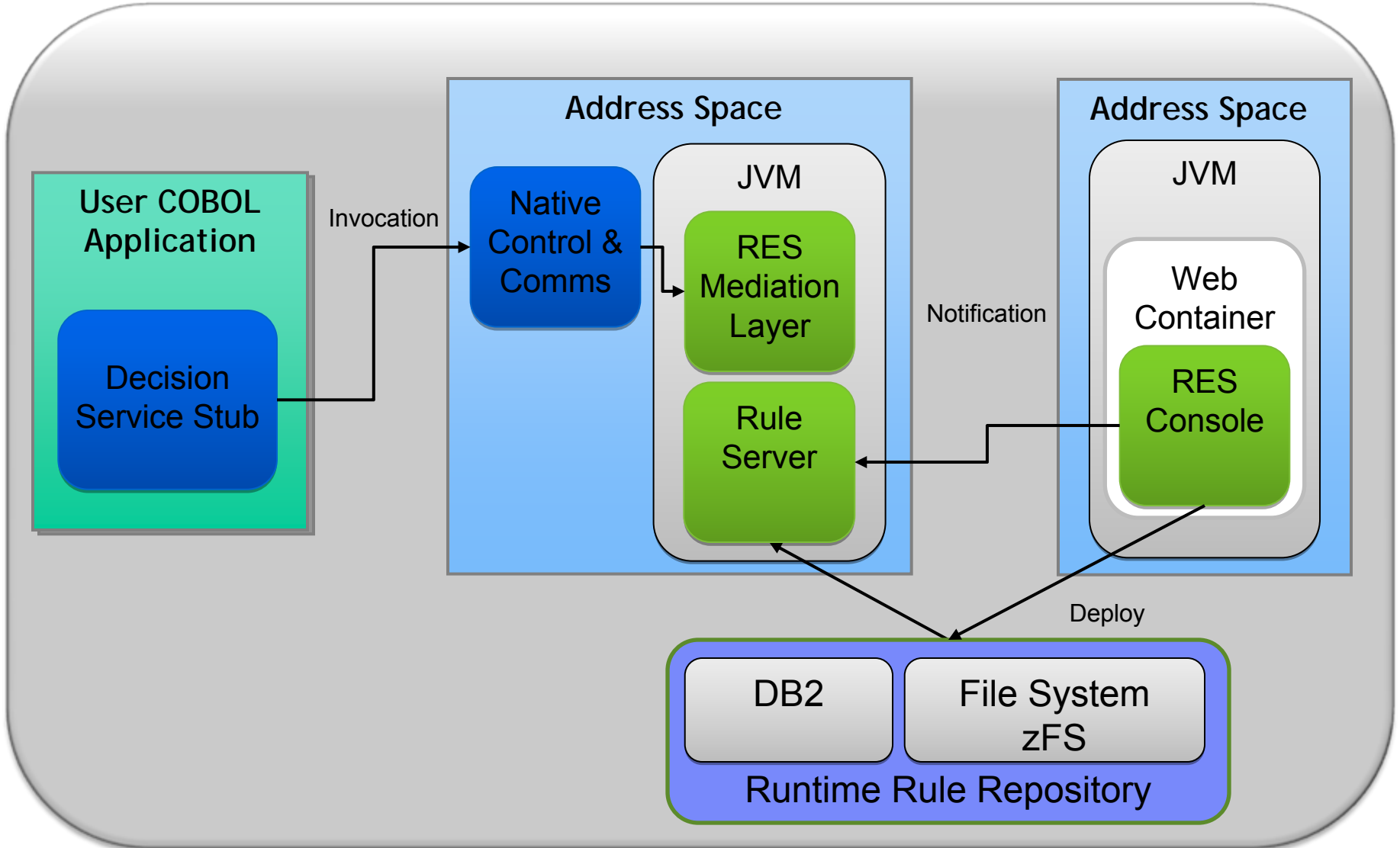
# Rule Invocation Options for System z Applications



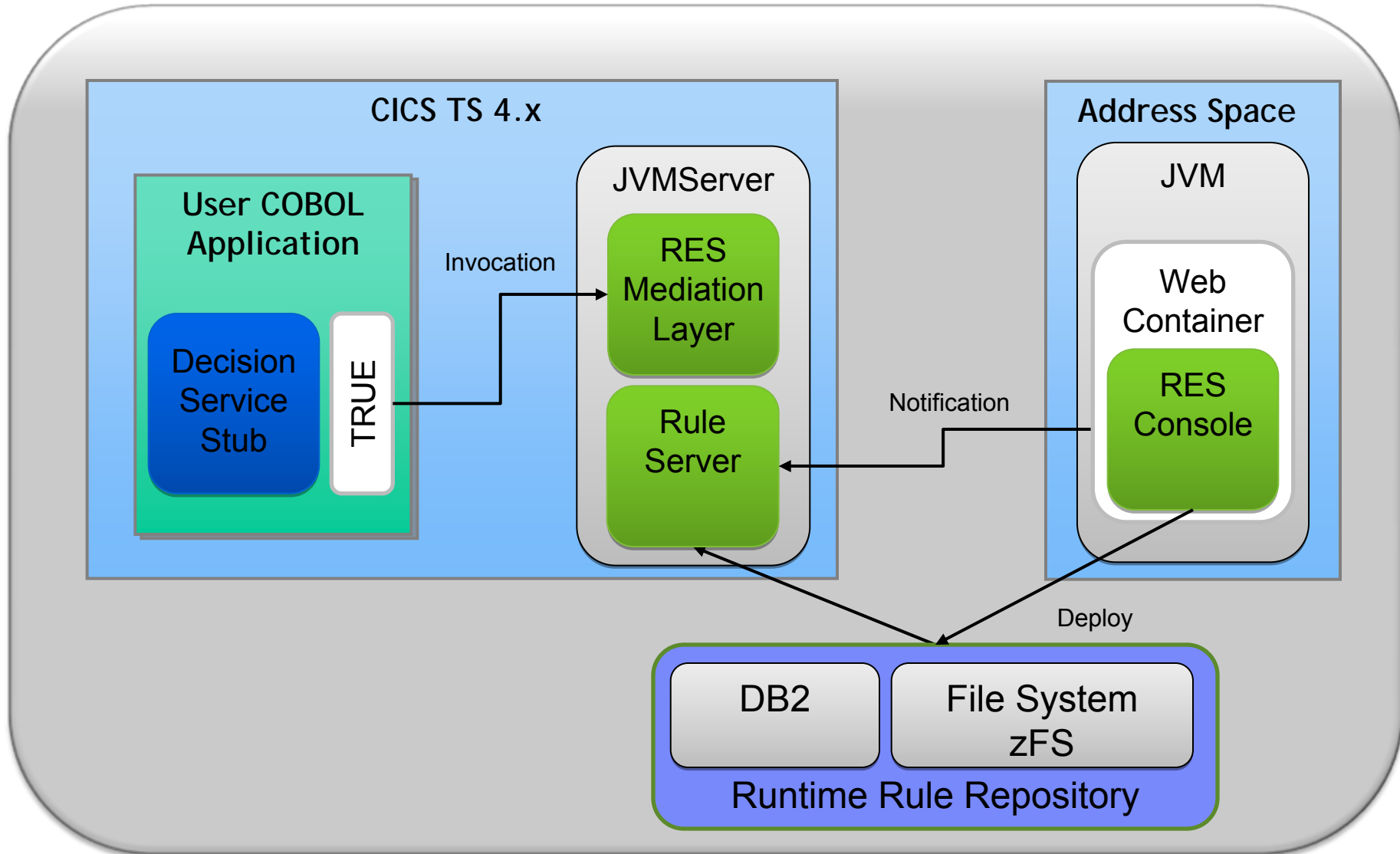
# Rule Execution Server for WAS on z/OS



# zRule Execution Server for z/OS – Stand alone



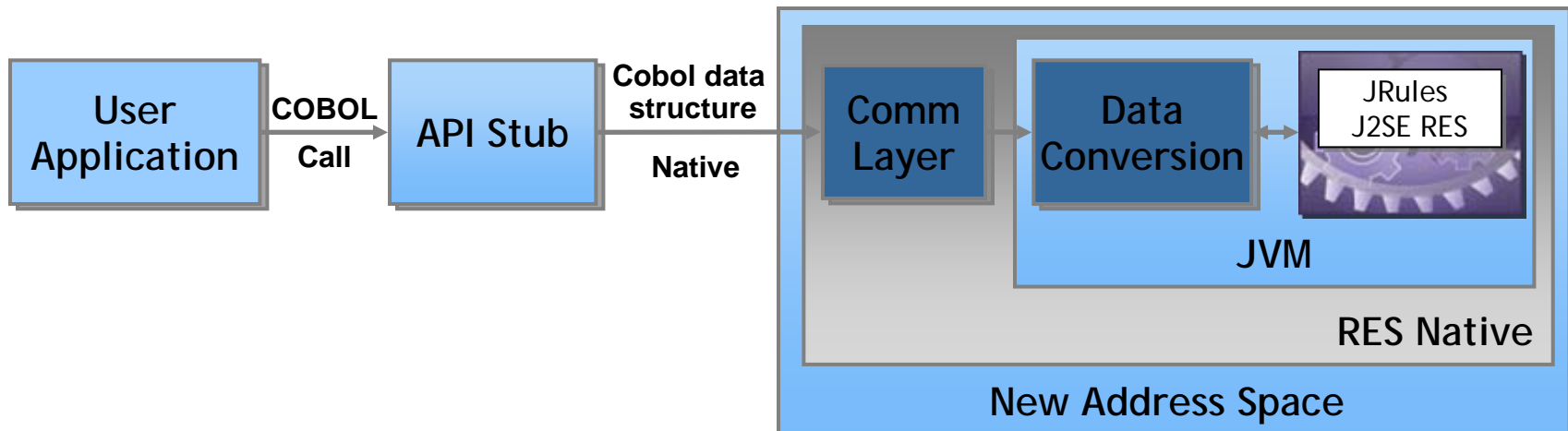
# zRule Execution Server for z/OS – CICS TS 4.x





# Overview of the new zRule Execution Environment for z/OS

- Easy integration with existing COBOL applications running in CICS & Batch
- Designed for unique needs of the System z customer base
  - Native zOS Execution in Java
  - COBOL stubs to glue the application to Rules Execution Native Server
  - Integrating core functionality from z based products
- Fully integrated with all key components of the existing BRMS offering
- For enhanced co-location, can implement within an existing CICS 4.x region



# Business Rule Execution

## Runtime enablement

- Write the Decision Service invocation in COBOL
- COBOL code remains independent of the Business Rules lifecycle on a stable decision service signature

## Decision Service Hot Deployment

- New decision version 'instantly' available
- From Rule Designer & Decision Center
- Versioned service made ready for execution from COBOL
- Let running executions complete

```

01 HBRA-CONN-AREA.
  10 HBRA-CONN-EYE          PIC X(4) VALUE 'HBRC'.
  10 HBRA-CONN-LENTH       PIC S9(8) COMP.
  10 HBRA-CONN-VERSION     PIC S9(8) COMP VALUE +1.
  10 HBRA-CONN-RESERVED01  PIC X(8).
  10 HBRA-CONN-FLAGS      PIC S9(8) COMP VALUE +1.
  10 HBRA-CONN-INSTANCE   PIC X(24).
  10 HBRA-CONN-RETURN-CODES.
    15 HBRA-CONN-COMPLETION-CODE PIC S9(8) COMP.
    15 HBRA-CONN-REASON-CODE   PIC S9(8) COMP.
  10 HBRA-CONN-RULEAPP-NAME PIC X(256).
  10 HBRA-RA-PARMS OCCURS 32.
    15 HBRA-RA-PARAMETER-NAME PIC X(48).
    15 HBRA-RA-DATA-ADDRESS  USAGE POINTER.
    15 HBRA-RA-DATA-LENGTH  PIC 9(8) BINARY.
  10 HBRA-RESPONSE-AREA.
    15 HBRA-RESPONSE-MESSAGE PIC X(256).
  10 HBRA-RESERVED.
    15 HBRA-RESERVED02      PIC X(128).
  
```

\* SELLER COPYBOOK - Item Details

```

01 SELLER-Data.
  05 SELLER-name          PIC X(10).
  05 SELLER-item-number  PIC 9(4).
  05 SELLER-item-details PIC X(48).
  05 SELLER-item-count   PIC 9(10).
  
```

```

SELLERCP  SELLER01.cbl  SELLER02.cbl  HBRA-CONN  HBRC
Line 33  Column 27  Insert
-----*A-1-B-----2-----+-----3-----4-----5-----6-----+-----
PROCEDURE DIVISION.
* Read input
*
EXEC CICS READ FILE(SCENARIO)
INTO(SELLER-Data)
RIDFLD(WS-SCENARIO-RID)
RESP(WS-RESP)
END-EXEC.
IF WS-RESP NOT = DFHRESP(NORMAL) THEN
EXEC CICS RETURN END-EXEC.
PROCESS-DATA.
MOVE "/Seller/SellerEvaluate" TO
      HBRA-CONN-RULEAPP-NAME
MOVE LENGTH OF SELLER-Data TO HBRA-RA-DATA-LENGTH(1)
MOVE "sellerData" TO HBRA-RA-PARAMETER-NAME(1)
SET HBRA-RA-DATA-ADDRESS(1) TO ADDRESS OF SELLER-Data
* Invoke the rule
CALL 'HBRRULE' USING
      HBRA-CONN-AREA.
* Check return code
IF HBRA-CONN-COMPLETION-CODE = HBR-CC-OK THEN
      DISPLAY 'Successful call'
ELSE
      DISPLAY 'Error '
      HBRA-CONN-COMPLETION-CODE
      HBRA-CONN-REASON-CODE
      HBRA-RESPONSE-MESSAGE.
EXEC CICS RETURN END-EXEC.
GOBACK.
  
```

# New Programming API

## \* Connect to Execution Region

call 'HBRCONN'  
using HBRA-CONN-AREA

## \* Populate Header with parameter data

## \* Connect to Execution Server

call 'HBRRULE'  
using HBRA-CONN-AREA  
IF HBRA-CONN-COMPLETION-CODE = HBR-CC-OK  
THEN  
...

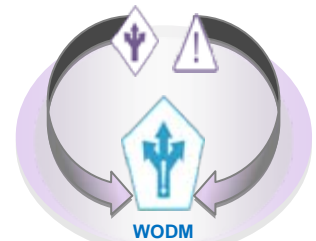
## \* Disconnect from Execution Region

call 'HBRDISC'  
using HBRA-CONN-AREA

### 01 HBRA-CONN-AREA.

```

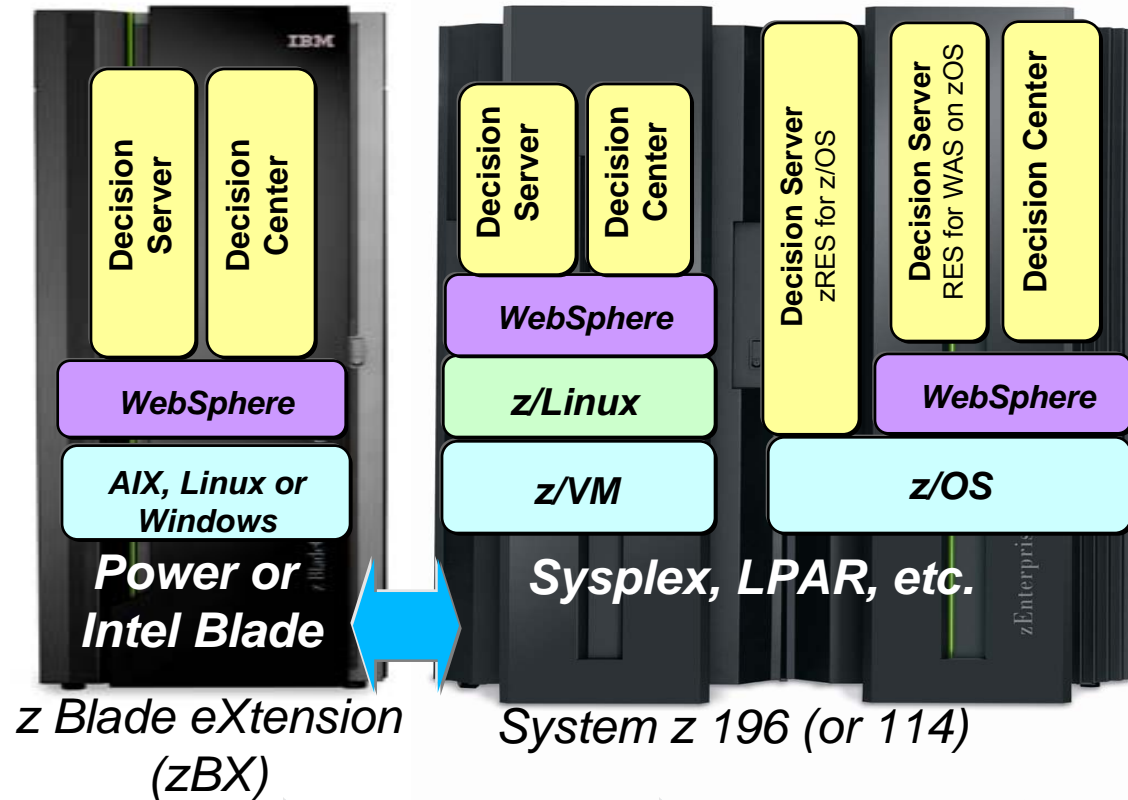
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10 HBRA-CONN-VERSION     PIC S9(8) COMP VALUE +1.
10 HBRA-CONN-RESERVED01  PIC X(8).
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```



# Rule Execution Options Summary

	Rule Execution Server for WAS for z/OS	zRule Execution Server for z/OS	COBOL generation Rules
OTTB integration with COBOL applications		✓	✓
Full support for all rule authoring constructs	✓	✓	
Hot deployment support for new decision versions	✓	✓	
Integration with Decision Center business tooling	✓	✓	✓
Testing and simulation support	✓	✓	
Decision Warehousing rule auditing support	✓		
Easy sharing of rules with distributed deployments	✓	✓	
Co-exists in same COBOL environment as calling app			✓
Local execution support for CICS TS v4.x		✓	✓
Full HA & transaction support through WAS for z/OS	✓		

# Deployment options for WODM on System z



**Security**

Safe

Safer

Safest

**Application/Data Access**

Fast

Faster

Fastest

# Why modernize with decision man on z and why now?

## Modernization issues to resolve

1. Consolidation of COBOL application portfolio
2. Be able to react to changes requested by business in days, not months.
3. Sharing rules across platform
4. Running parallel

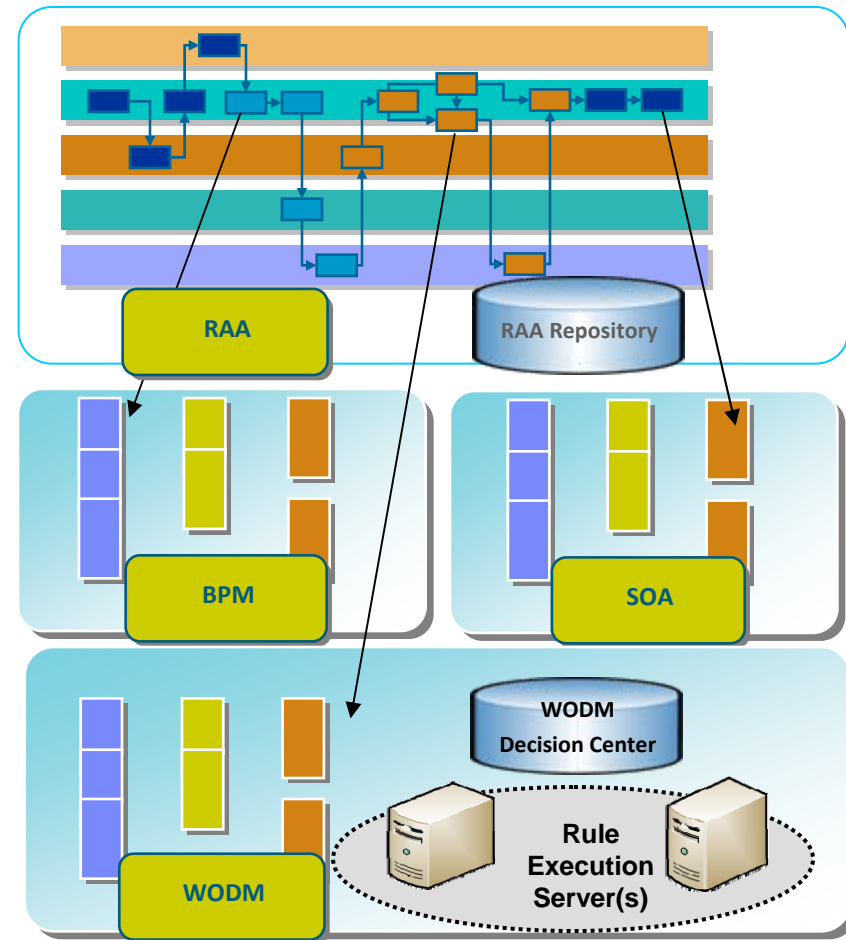
## Benefits of a BRMS

- ✓ **Cost savings**
  - More effective application development & maintenance with less business risk
  - Consolidation/restructure of existing applications, saving hardware & resources
  - Rule testing and simulation to ensure accuracy of changes prior to deployment which will minimize re-work
- ✓ **Changing ratio of source inventory to development skills**
  - Forcing need for formal processes with an on line electronic repository
- ✓ **Improved agility**
  - Decouple development and business rule lifecycles
  - New rules to enforce new business policies to multiple applications
- ✓ **Incremental rule modernization: applying technology and process to gain increased “decision making” agility**
  - Gradually pull out rules from existing applications - does not require a “big bang” change
  - Rewrite business rules in natural language

# Rational Asset Analyzer with Rule Mining

*Simplify identification of candidate business rules*

- For customers who ...
  - Want to be more responsive in supporting an organizations or business units requirements for change
  - Need to get a detailed, complete view of existing business processing and how it fits into today's architectures
- Business Value
  - Improve developer productivity
  - Lower development, training, and mining costs
  - Increase speed and completeness of modernization
- Key RAA Capabilities
  - Visualization of application architectures, programs, data, and their interactions
  - Powerful search and tracing via impact analysis
- Highlights of RAA with rule mining functionality
  - Identification of terms and synonyms
  - Search across portfolios for direct and indirect usage of terms and rules
  - Identify and persist coding constructs that are candidate rules
  - Ability to author structure rules with the WebSphere Operational Decision Management rule editors for import to Websphere Operational Decision Management (WODM)



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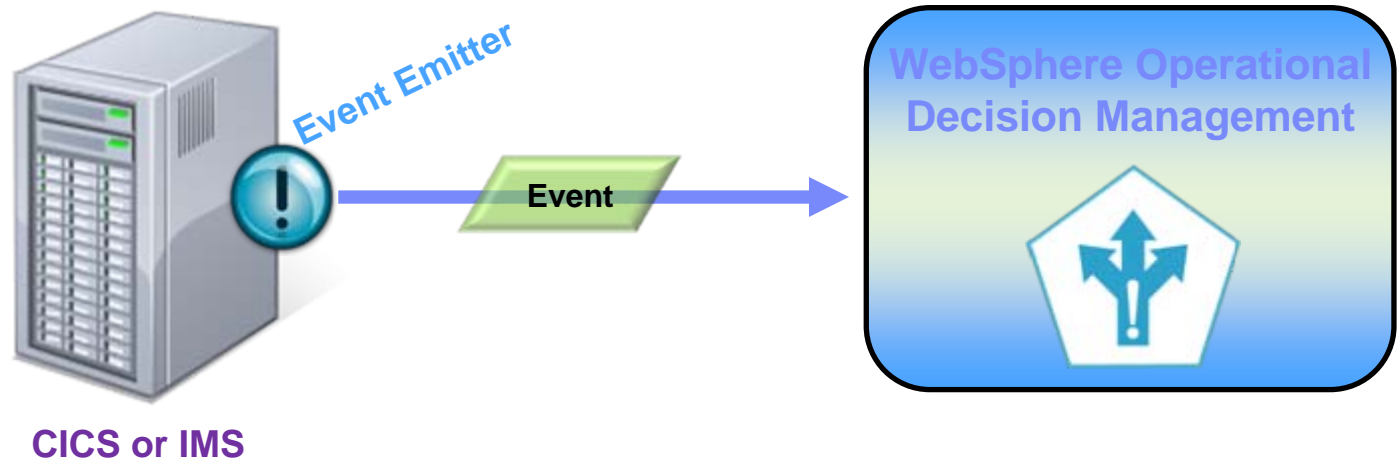


# Connectivity and integration

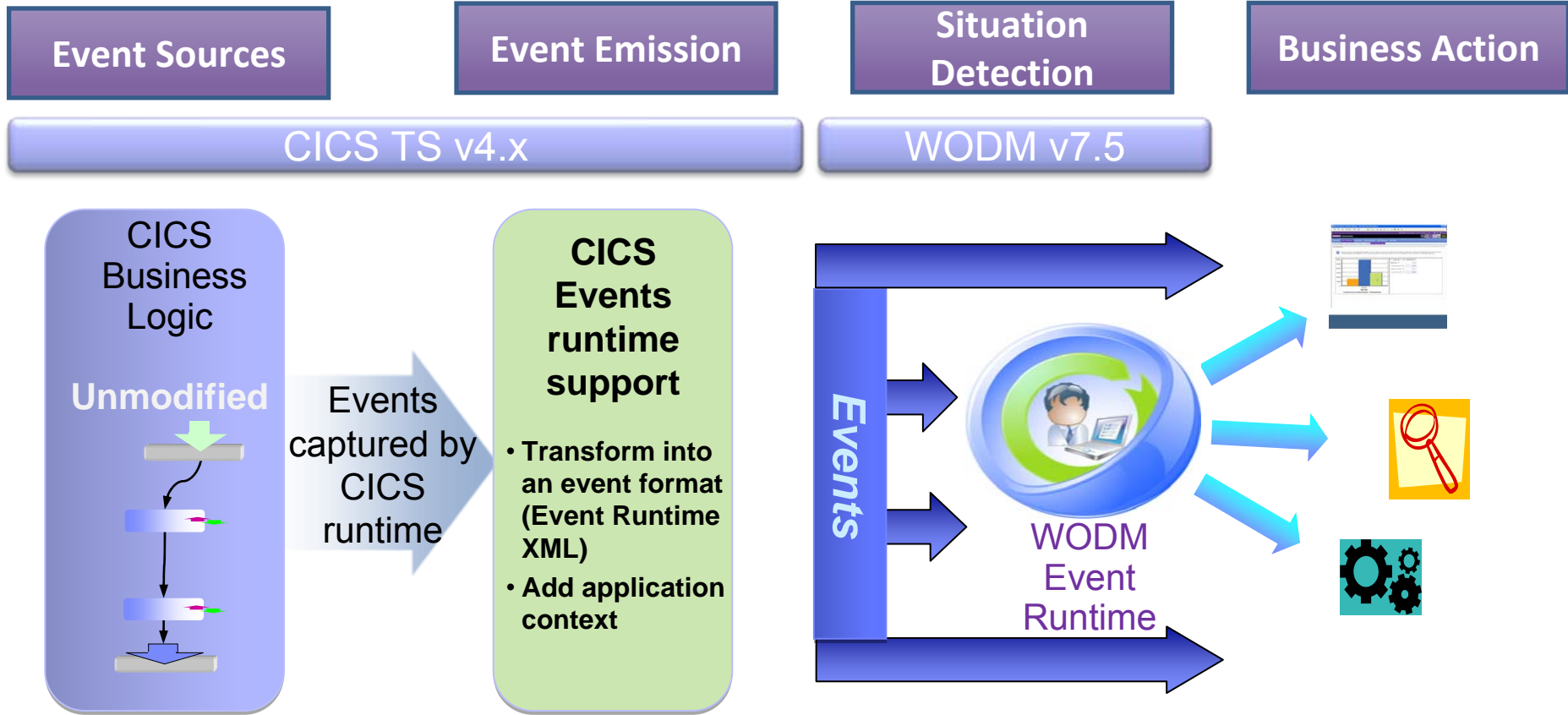
- ✓ **CICS**
- ✓ **IMS**
- ✓ **IBM Business Process Manager**
- ✓ **IBM Business Monitor**
- ✓ **Cognos BI**
- ✓ **Smarter Commerce**
- ✓ **Enterprise Service Bus**
- ✓ **Message Broker**
- ✓ **Analytical decision management (SPSS)**
- ✓ **InfoSphere Streams**
- ✓ **Unica**
- ✓ **Tivoli**
- ✓ **Event and Action Connectors**

## CICS and IMS

*With a minor amount of configuration (not coding), events can be automatically generated to WebSphere Operational Decision Management*



# Business event emission from CICS Transaction Server to WODM

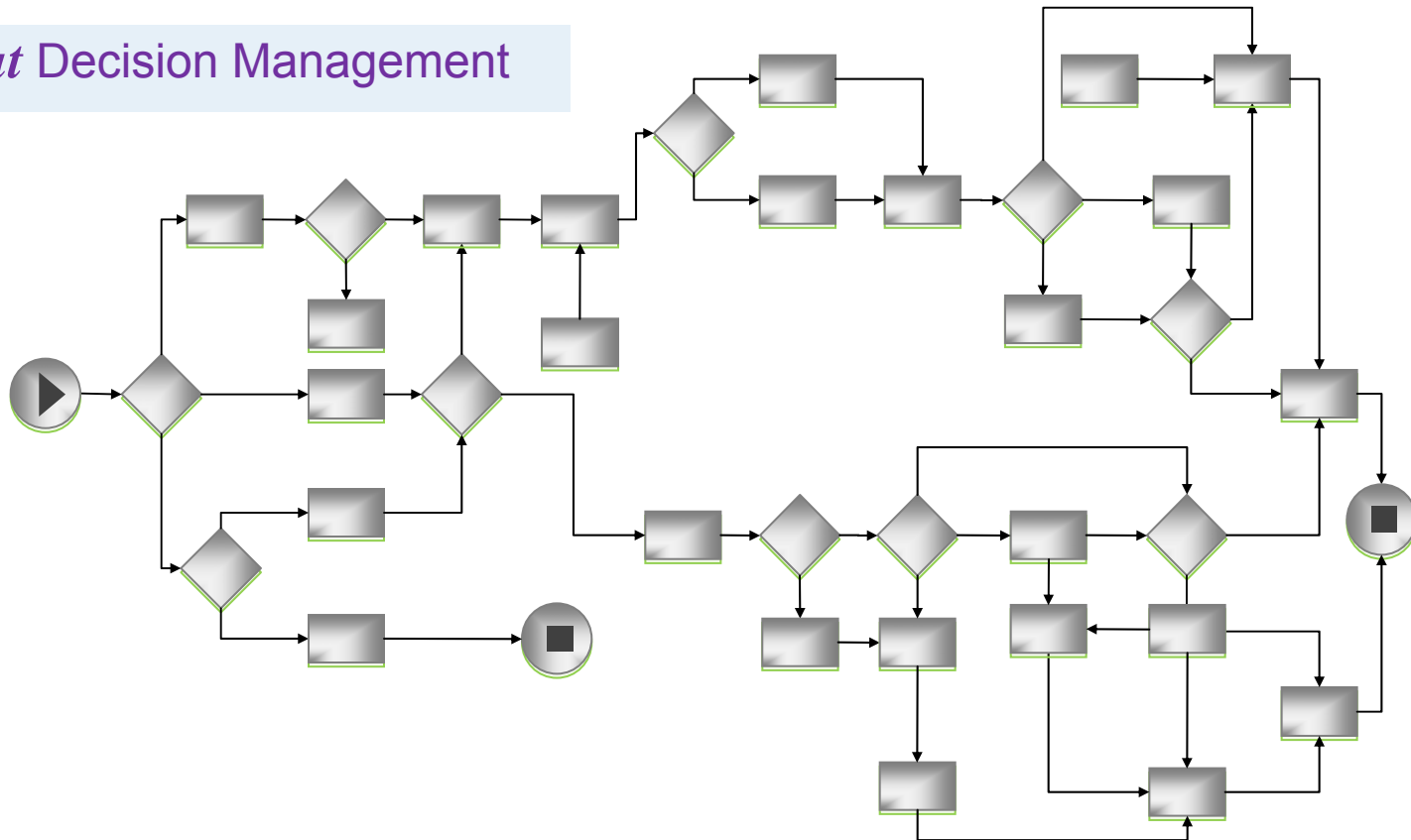


***CICS Events with WODM 7.5 help you to***

- ***Observe business applications***
- ***Recognize interesting or suspicious situations***
- ***Drive new processing***

# Decisions are often locked within processes

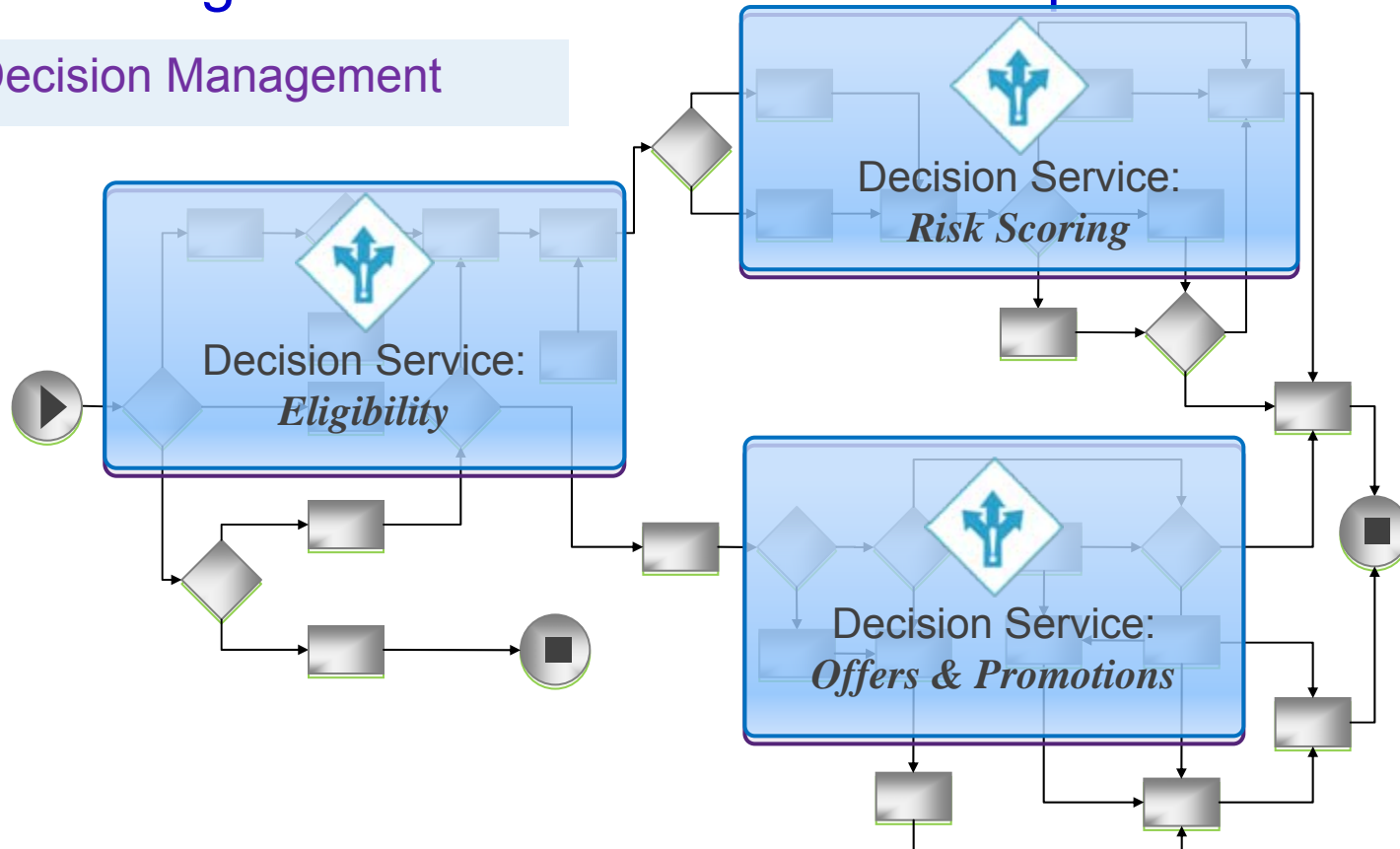
*Without* Decision Management



- Decisions are locked in processes and applications
- Programming skills are needed to create & modify decision logic
- Speed of business change is limited by IT bandwidth
- Manual intervention increases costs & reduces customer satisfaction

# Decision Management enables reuse across processes

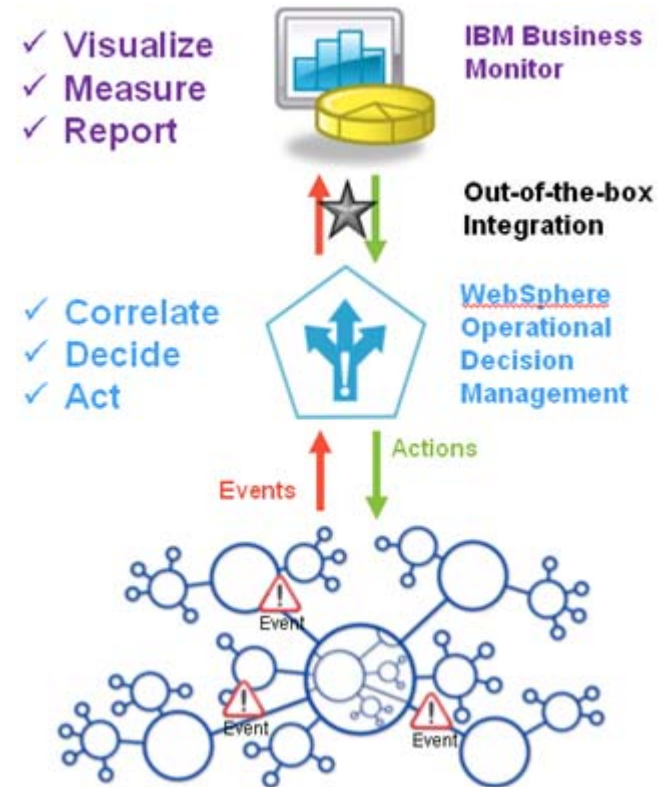
*With* Decision Management



- **Reuse decision assets** across processes
- **Empower business people** to own, author and update decision services
- **Respond quickly** to changing market conditions
- **Maximize automation** and straight-through processing

# IBM Business Monitor provides additional visibility and insight

- Provides richer, more graphical reporting capabilities than what is available in WODM
  - Rule execution data can be used to provide *business-level context*
- Native integration for sending and receiving of events and messages
- Execution data can be analyzed for trends – is following up with a customer producing real revenue or is it a waste of time?
- Allows rule execution data to be combined with other business system data for a consolidated view of metrics
- Additional capabilities for alerts or actions when a business situation occurs or is about to occur



Alert Manager							
Alerts to Display		MonitorMiniloanDecisions 2010-02-25 17:49:09	Total Approved Loan Amount		New Alert		Save
Alert Name	Description	Owner	<input checked="" type="checkbox"/> Dashboard Alert	<input type="checkbox"/> Cell Phone	<input type="checkbox"/> E-mail	<input type="checkbox"/> Pager	Actions
Total loan amount too high	Total loan amount more than 5 million	admin	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

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# How can WODM add value to your solution?

## ■ Are you a good candidate?

- Existing CICS, IMS, Batch and WAS z/OS Customers as well as existing JRules Distributed Customers

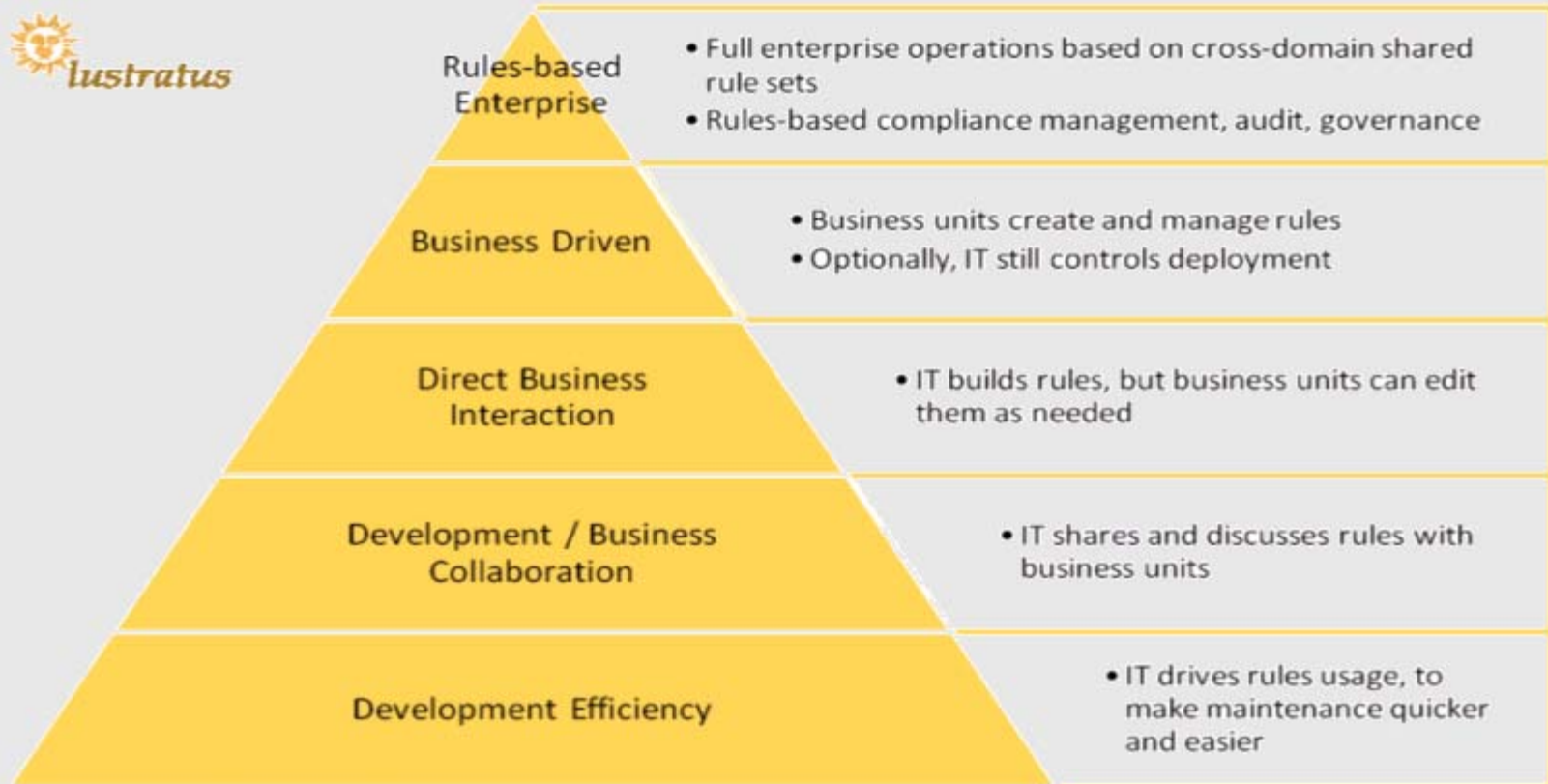
## ■ Questions to ask yourself...

- Are you able to quickly make the changes, that are required by the market, competition, and regulatory conditions, to your z/OS applications?
- Could your company benefit from having a central place to manage the decision logic (rules) for both business analysts and IT developers to facilitate rapid change and adaptation?
- How confident are you that the business policies you have in your system actually reflect your business needs? And that you are compliant with current regulations?
- Do you have the ability to reuse your existing rules assets to assemble and reconfigure applications rapidly so you can meet current and future requirements?





# Review of a business rule maturity model



Source: The Lustratus BRMS Maturity Model

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# Operational Decision Management Helps Solve Many Common Business Problems

*Identify opportunities to increase profitability*



Personalized Product Recommendations  
Promotions & Loyalty Programs  
Automated Sales Commissioning

*Enforce consistency to ensure compliance*



Claims Validation  
Payment Authorization  
Eligibility Determination

*Leverage information to manage risk*



Underwriting and Credit  
Border Control  
Physical Infrastructure Monitoring

# Visa Europe Unifies Payments Across 36 Countries

*Scalable, automated payment authorization and settlement system*

## Challenge:

- Complex European market with multiple currencies
- Payment authorization & settlement across 36 countries
- Regulatory requirement to unify payments across countries

## Benefits:

- 3x faster time-to-market
- 25% cost reduction to maintain business logic
- Increased flexibility and responsiveness with business users managing the rules

## Decision Management Solution

- *Financial payments authorization & settlement system*
- *System handles 30,000 rules and 500 transaction types for 4,000 institutions*

*“Within 13 months we’ve made 60 rule changes... What [the system] gives us is tools that can put key capabilities into the hands of users. They become an integral part of the process, rather than mere consumers of it. That’s a tremendously powerful concept...”*

*~ Justin Snoxall, VP, Head of Development Services, Visa Europe*

# HealthNow Speeds Up Member Enrollment

*Speed to market gains of over 50% to roll out new programs*

## Challenge:

- Respond quickly to regulatory mandates
- Increase efficiency by streamlining internal processes
- Address growing complexity in healthcare

## Benefits:

- Reduce enrollment time and administrative costs
- Increased speed to market by 50%
- Greater consistency from externalized decision logic and process visibility

## BPM and Decision Management Solution

- *Member enrollment process to automate eligibility and coverage for new member applications*
- *Comprehensive audit trail of rules and decisions*

*“Providing innovative products and services while improving the availability, quality, and cost of healthcare is central to our corporate vision. WebSphere Process Server and ILOG JRules have enabled us to automate, optimize and monitor critical business decisions within our core processes.”*

*~ John Walsh, Chief Enterprise Architect, HealthNow New York Inc.*

# Agenda

- ▶ Operational Decisions: why and what
- ▶ WebSphere Operational Decision Management: how
- ▶ Synergy with decision management
- ▶ Adoption
- ▶ Operational Decision Management use cases
- ▶ **Next steps**

## Key takeaways

***Adapt*** to change with increased speed & agility

*Intuitive natural language for specifying rules and events*

***Align*** business units and IT with enhanced visibility & governance

*Integrated repository for reliable versioning and change control*

***Act*** in real-time with high performance & reliability

*Robust runtime for mission-critical deployment*

## WebSphere Operational Decision Management

***Your business decisions.***

***Made by your business experts.***

***Delivered in real-time by technology.***

## Join us at SHARE in Atlanta, March 11-16, 2012



CICS and Decision Management: Perfect Together

***Tuesday, March 13, 2012: 3:00 PM-4:00 PM***

Using Business Rules to Achieve Affordable Agility in System z Applications

***Thursday, March 15, 2012: 8:00 AM-9:00 AM***

Modernization of Mainframe Applications with WebSphere Operational Decision Manager for z/OS

***Thursday, March 15, 2012: 9:30 AM-10:30 AM***

Why Business Rules and Business Process Management are Important to System z Apps (and to you)

***Thursday, March 15, 2012: 4:30 PM-5:30 PM***



IBM Software

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<http://www-01.ibm.com/software/websphere/events/impact/registration.html>

## Next steps



### See Operational Decision Management - *In Action*

- Go to [ibm.com/operational-decision-management/scenarios](http://ibm.com/operational-decision-management/scenarios) to see and hear customer videos and podcasts
- Schedule an online custom demo

### Learn what's possible - *Discovery Workshop*

On-site [workshop](#) with business and IT stakeholders to evaluate the applicability of decision management for your project



### Implement a real project in 10 weeks - *Quick Win Pilot*

- Demonstrate immediate value to your LOB end-users with your first 'Quick Win' in 10 weeks
- Accelerate the deployment of decision management using a proven, incremental approach and a [production-ready pilot](#)
- Collaborate with IBM experts on your first win

# Where can I find out more?

- [WebSphere Operational Decision Management for z/OS](#)
- White papers & tech docs
  - [WebSphere z/OS – The Value of Co-Location](#)
  - [Brief introduction to WebSphere Optimized Local Adapters](#)
  - [WebSphere for System z Prescriptive Use Cases \(Oct. 28, 2011 Addendum\)](#)
- Redbooks
  - [Batch Modernization on z/OS](#)
  - [Patterns: Integrating WebSphere ILOG JRules with IBM Software](#)
- [WebSphere Operational Decision Management YouTube demo](#)
- [9 day-to-day decisions you can make better with Operational Decision Management](#)
- [Good Decision! Decision Management blog](#)
- [System z pricing](#)

# Thank You

