Why Business Rules are important to CICS Users
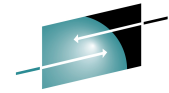
March 2010

Chris Backhouse
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Business Decisions are Everywhere…

SHARE
Technology · Connections · Results

We need to add an eligibility check to meet the requirements of the new regulation.

Let's create a special promotion for our best customers.

Up-sell/Cross-sell offer

Commissions / Royalties

Compliance Screening

Underwriting

Tax calculation

Documentation Requirements

Fraud assessment

Billing

Accounting Disposition

Configuration

Eligibility

Pricing

Product Selection

Benefit calculation

Can we automate approvals for this type of order?

And Changing Frequently

Traditional Approach for Managing Decision Change

The traditional (ad hoc) approach of dealing with rule changes leads to…

💣 Reduced organizational agility

💣 Reduced employee productivity

💣 Increased load on IT

Where Business Rules Typically Exist

Applications

Documents

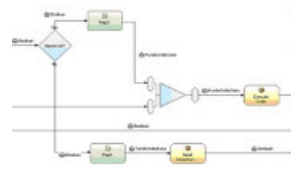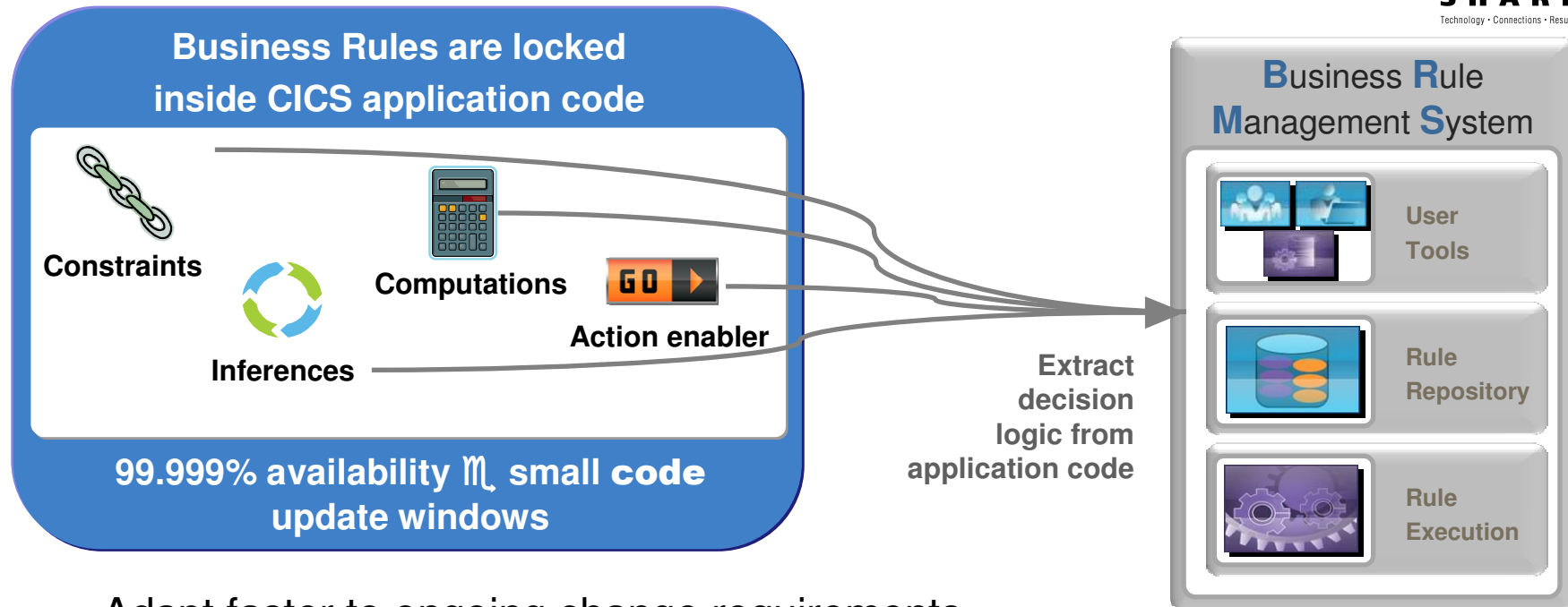**People**

Processes

Issues

- Rules are hidden in code or isolated within the organization

- Changes are hard to track and maintain over time

- Rules used by systems have to be programmed and require IT resources

- Duplication and multiple versions of the same rules

- Lack of auditability, traceability

- Decision changes cannot be easily tested or simulated

A More Agile Approach with BRMS

Business Rules are locked inside CICS application code

Constraints

Computations

GO ▶

Action enabler

Inferences

99.999% availability ♏ small code update windows

Extract decision logic from application code

Business Rule Management System

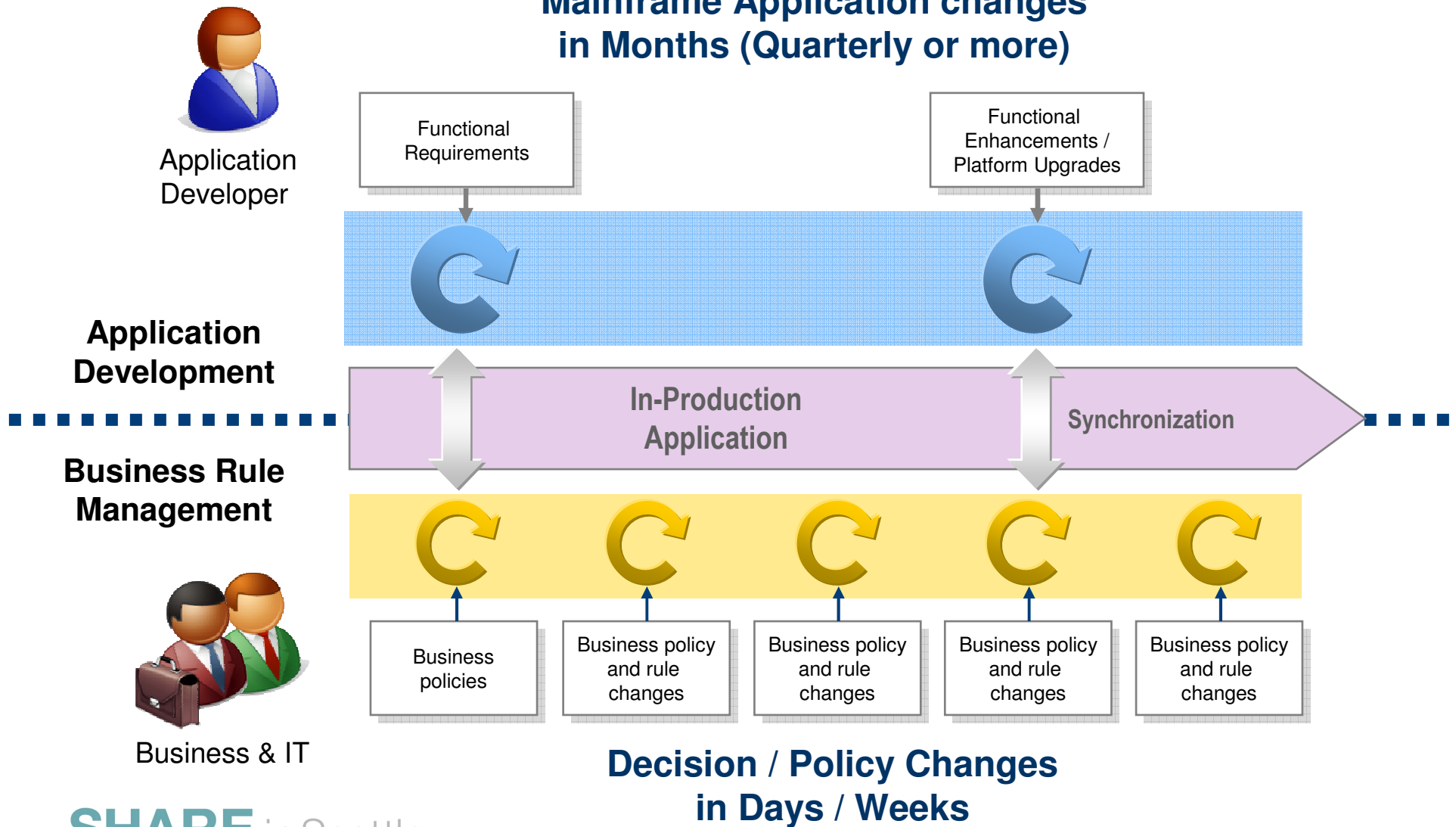**User Tools**

Rule Repository

Rule Execution

- Adapt faster to ongoing change requirements
  - Respond to customer and industry demands by deploying rule changes independently from lengthy application maintenance cycles
- Reduce load on IT development
  - Express decision logic in business language terms to enable your business experts to participate in rule changes
  - Validate rules execution without the need to retest the whole CICS application

Separate Application Development and Rule Lifecycles

**Mainframe Application changes
in Months (Quarterly or more)**

Application Developer

| Functional Requirements |

| Functional Enhancements / Platform Upgrades |

Application Development

In-Production Application

Synchronization

Business Rule Management

Business & IT

| Business policies |

| Business policy and rule changes |

| Business policy and rule changes |

| Business policy and rule changes |

| Business policy and rule changes |

**Decision / Policy Changes
in Days / Weeks**

Examples of Decisions Suitable for a BRMS Solution

Banking
- Loan Origination
- Credit Decisioning
- Sales Advisory
- Payments
- Accounting

Insurance
- Claims Processing
- Underwriting
- Quoting
- Rating
- Commissioning

Capital Markets
- Automated Trading
- Trade Order Management
- Accounting
- Compliance KYC / AML
- On Boarding

Public Sector
- Claims Processing
- Entitlement and Benefit calculation
- Fraud Detection and Management
- Screening and Targeting

Telecom
- Offer Configuration
- Order Management
- Fraud Detection and Management
- Loyalty Programs
- Network Monitoring

Transportation and Travel
- Promotions Management
- Loyalty Programs
- Customer Service
- Billing
- Contract Management

Retail
- Online recommendation
- Campaign Management
- Order Management
- Pricing

Manufacturing
- Order Management
- Billing
- Contract Management

Manage Rule-based Decisions

> WebSphere ILOG BRMS is ***the IBM technology*** for creating, maintaining and implementing decision services…

- Allows for easy implementation and reuse of business rules

- Provides a convenient communication channel between IT and business teams

- Improved regulatory compliance

- Consistency in applying business decisions across applications
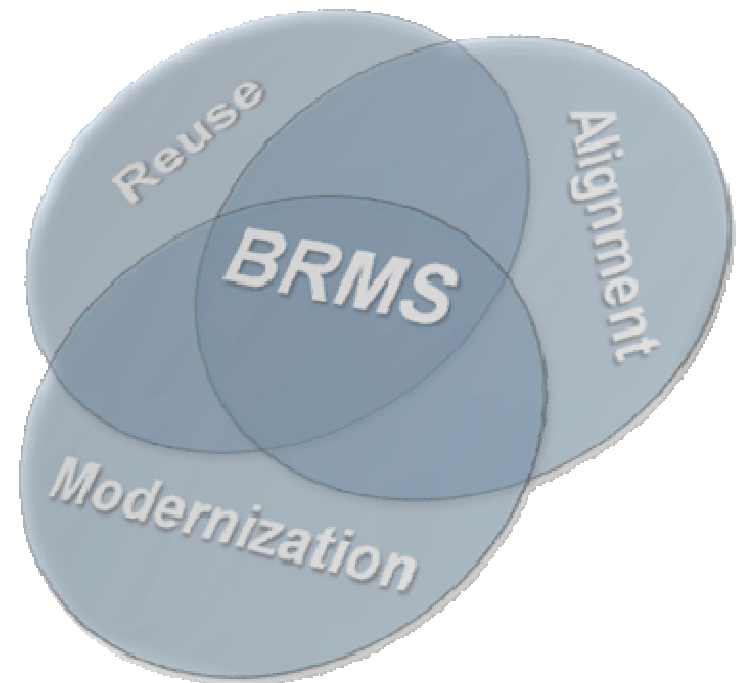
How does BRMS benefit?

- Consolidation and/or maintenance of COBOL applications
  - Author rules in JRules…verify which rules will move them into the future
  - Rules can now be shared across applications…new and **old**

- 2010 Maintenance Projects
  - Projects that are changing rules…why not upgrade to a BRMS and make rules available to Business Users…faster changes….decrease future maintenance costs and time

- Sharing Rules across Platform
  - Already understand the value of a BRMS…why not use this proven technology with their mission critical COBOL applications

- Running Parallel
  - Basically you can not turn one application off and turn on a new application
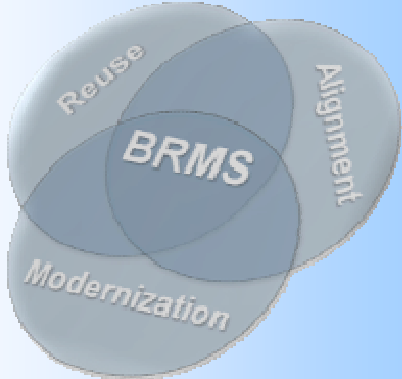 - Phased approach

WebSphere ILOG BRMS and CICS Transaction Server Working Together

Transforming the Enterprise through Smarter Work

Enable assets to become more agile, while leveraging the strengths of CICS

CICS

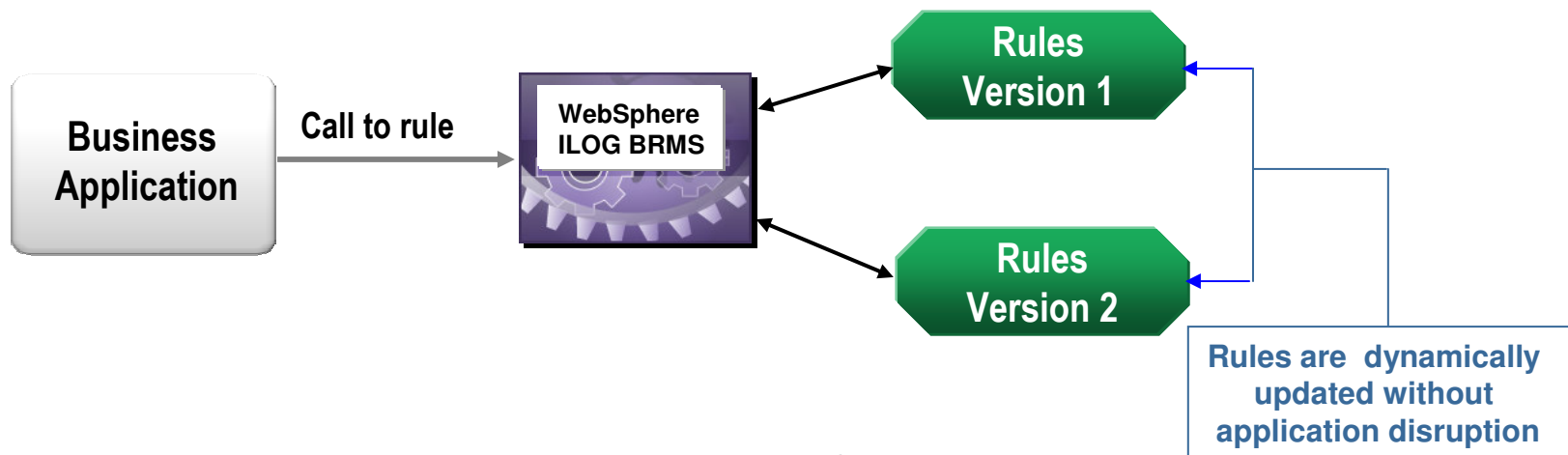*Reliability*

Availability

Scalability

Security

Performance

System Management

Reuse

Alignment

BRMS

Modernization

Customizable decisions

Reduced time for changes

Business and IT alignment

*Transparency and Auditability*

Improve Application Agility

Use ILOG BRMS to rapidly modify business rules without having to update the application

Business Application → **Call to rule** → **WebSphere ILOG BRMS**

Rules Version 1

Rules Version 2

Rules are dynamically updated without application disruption

- Decouple development and business rule lifecycles
- New rules to enforce new business policies can be implemented with minimal application changes
- Centralized Rules Engine allows change to be implemented across multiple applications simultaneously

Incrementally Modernize Applications

Use ILOG BRMS to unlock rules hidden in existing applications

**Application**

Rule 1

Rule 2

Rule 3
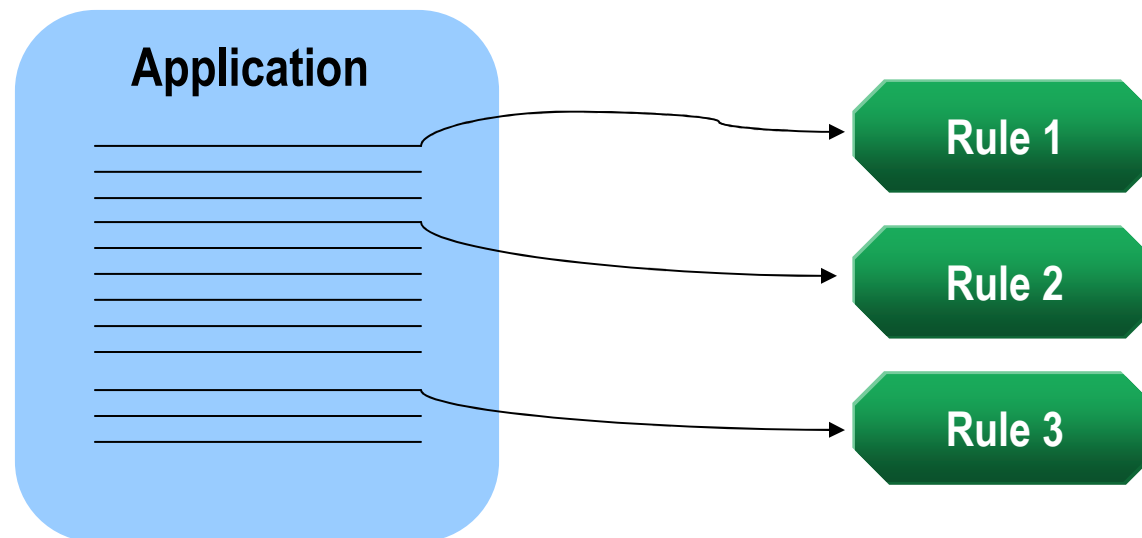
- Gradually pull out rules from existing applications
  - Rewrite business rules in natural language and store them in a central location
  - Does not require a "big bang" change

WebSphere ILOG JRules 7.0 Components

Development

Line Of Business

Production

Design

Rule Studio

Manage

Rule Solutions for Office

Rule Team Server

Decision Validation Services

Share

Rule Repository

Deploy

SOA

Transparent Decision Services

Rule Execution Server

COBOL

Rules for COBOL

Custom Web Applications
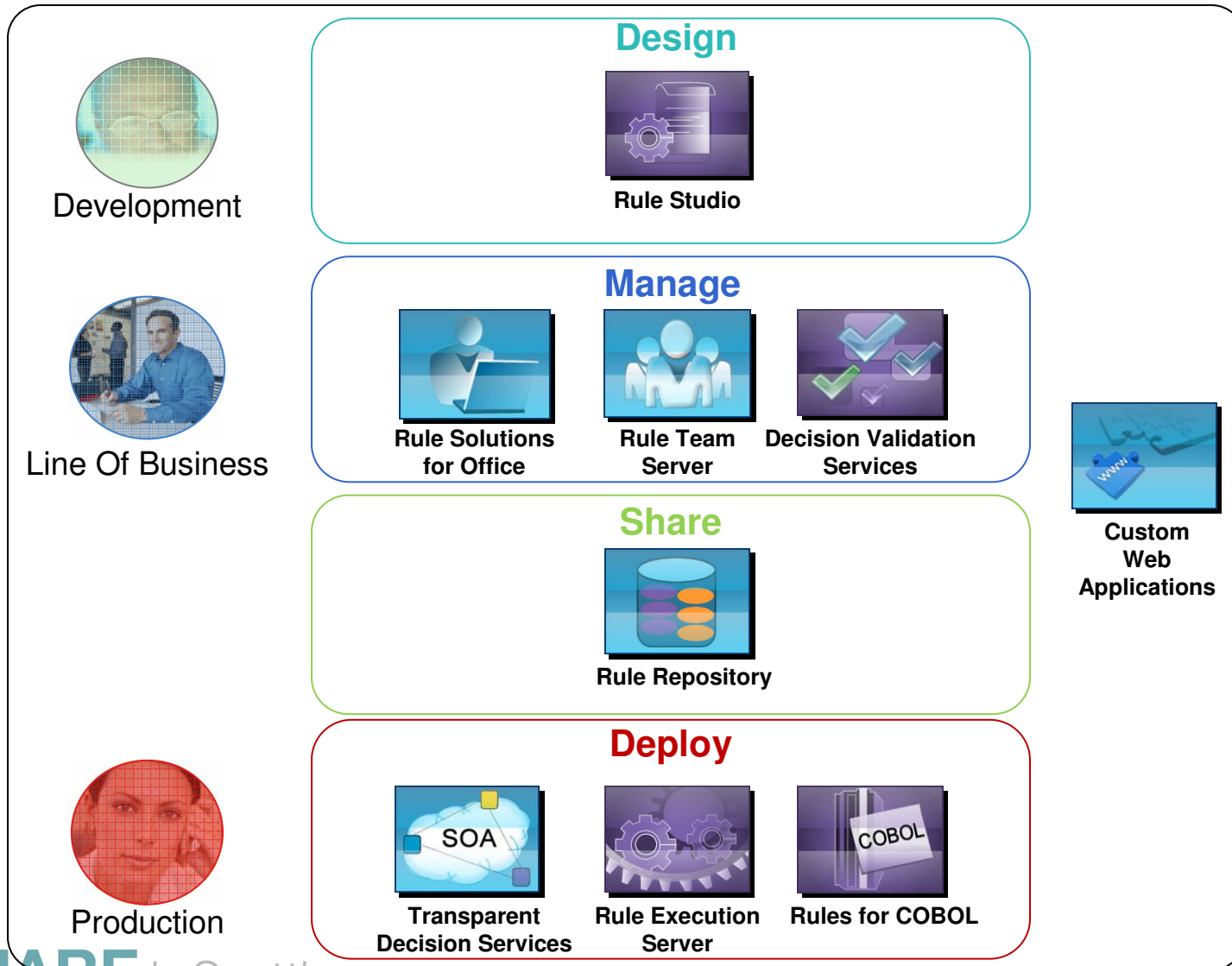
Reduce the Load on IT Development

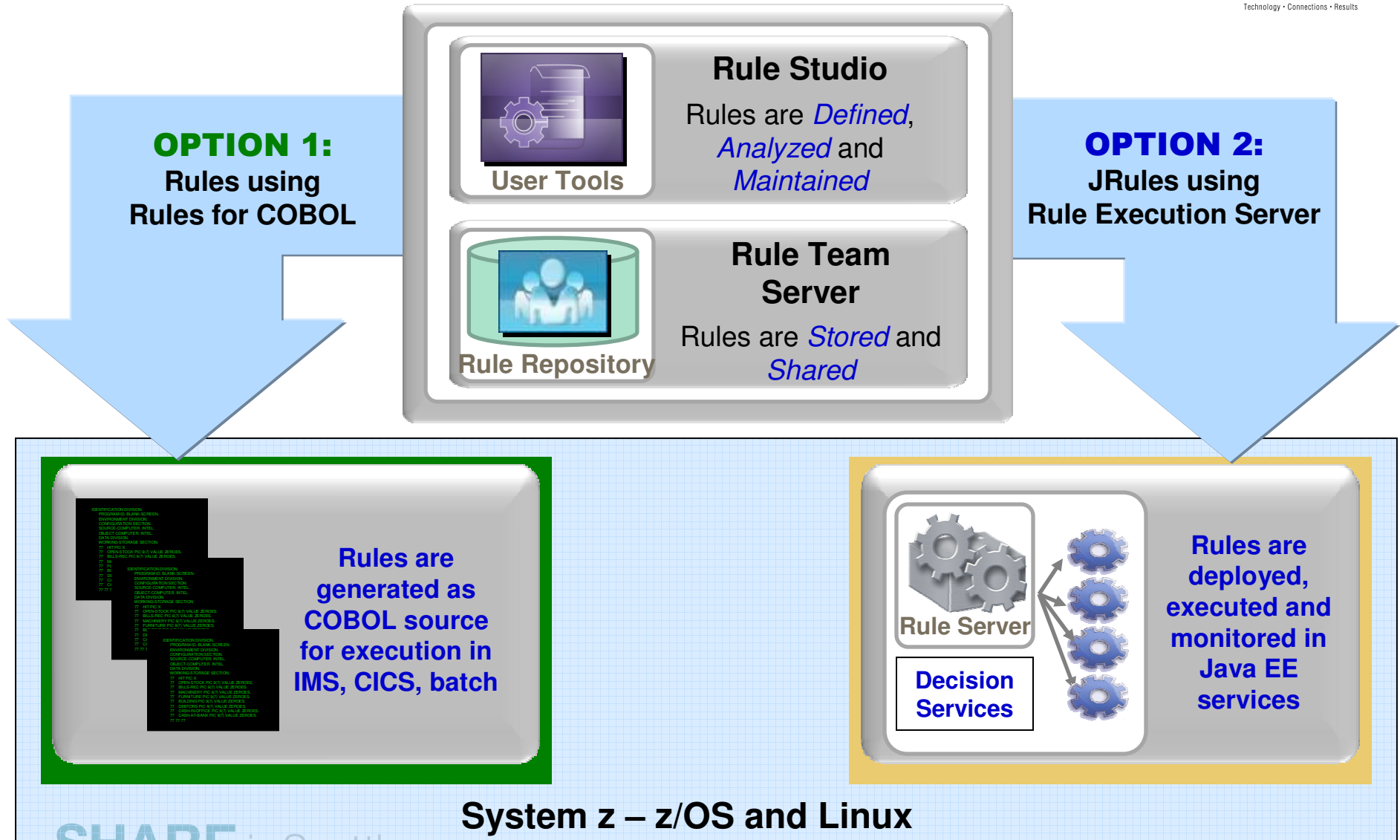Use ILOG BRMS to align Business and IT on decisions and rules
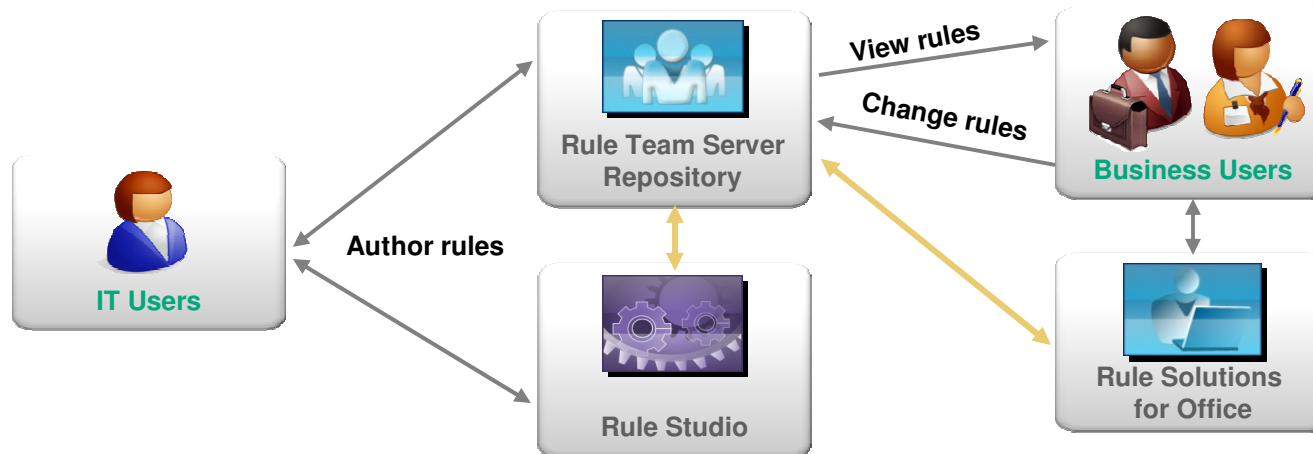
- Provide visibility of business rules to Business Users via Web interface
- Provide selective rule authoring ability to Business Users via Web interface
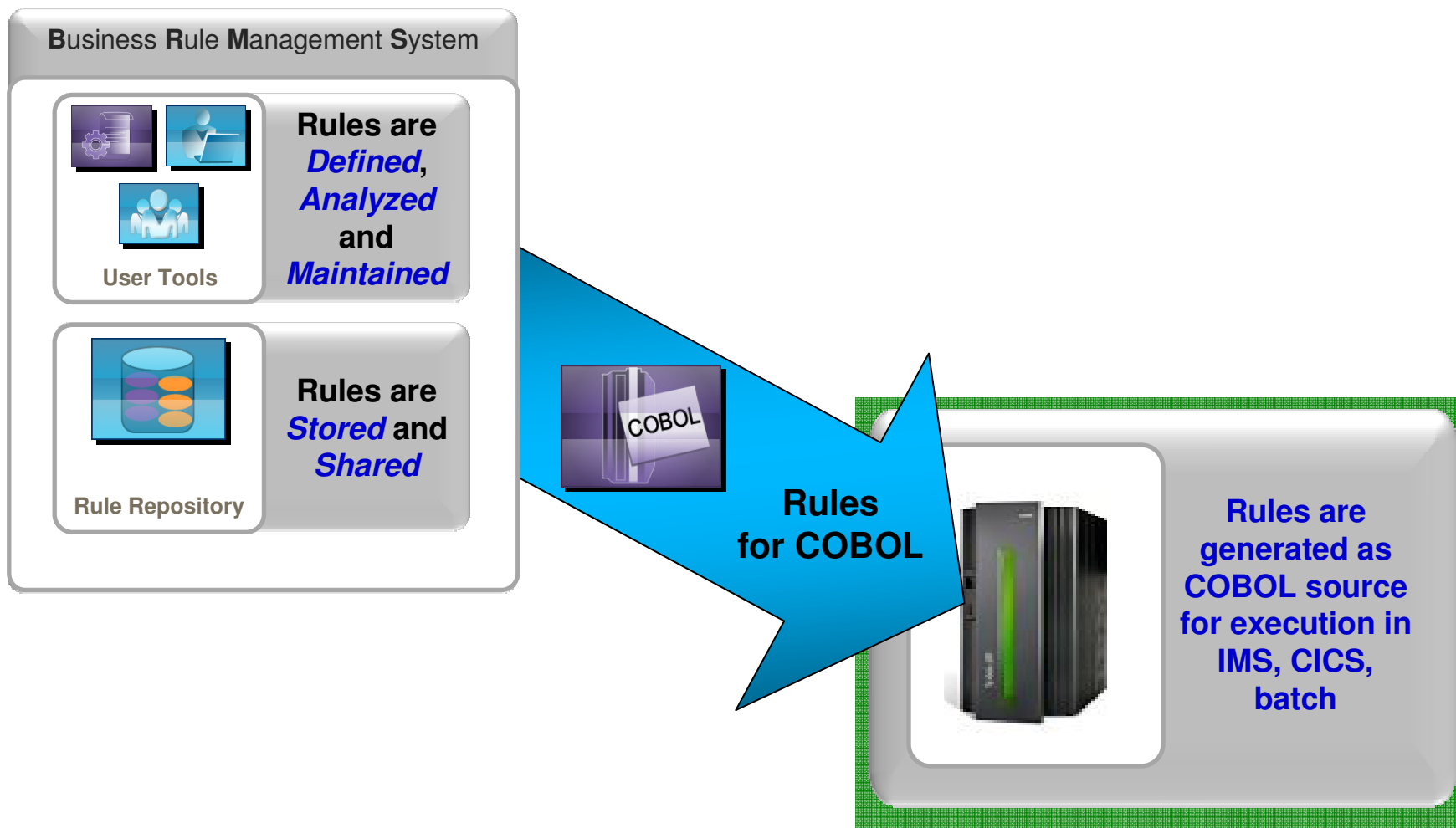 - E.g. IT can enable rule parameters to be changed by business

Rule Solutions for Office extends Rule Team Server capabilities
  – Provides capabilities to author and change rules using familiar desktop tools

ILOG BRMS System z Options

Rule Studio

Rules are *Defined*, *Analyzed* and *Maintained*

User Tools

OPTION 1:
Rules using
Rules for COBOL

Rule Team Server

Rules are *Stored* and *Shared*

Rule Repository

OPTION 2:
JRules using
Rule Execution Server

Rules are generated as COBOL source for execution in IMS, CICS, batch

Rule Server

Decision Services

Rules are deployed, executed and monitored in Java EE services

System z – z/OS and Linux

Rules for COBOL

Business Rule Management System

User Tools

Rules are Defined, Analyzed and Maintained

Rule Repository

Rules are Stored and Shared

COBOL

Rules for COBOL

Rules are generated as COBOL source for execution in IMS, CICS, batch
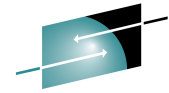
Rules for COBOL

- **Without a BRMS:**
  - Rules are hidden in COBOL code, databases,…
  - Potentially undocumented
  - Accessible only by IT people
  - Subject to same life cycle as the code
- **With BRMS automated decisions are:**
  - Expressed and documented in business terms
  - Versioned
  - Able to change when the business needs it
  - Can be managed with collaborative web tools
  - Can be reused across applications
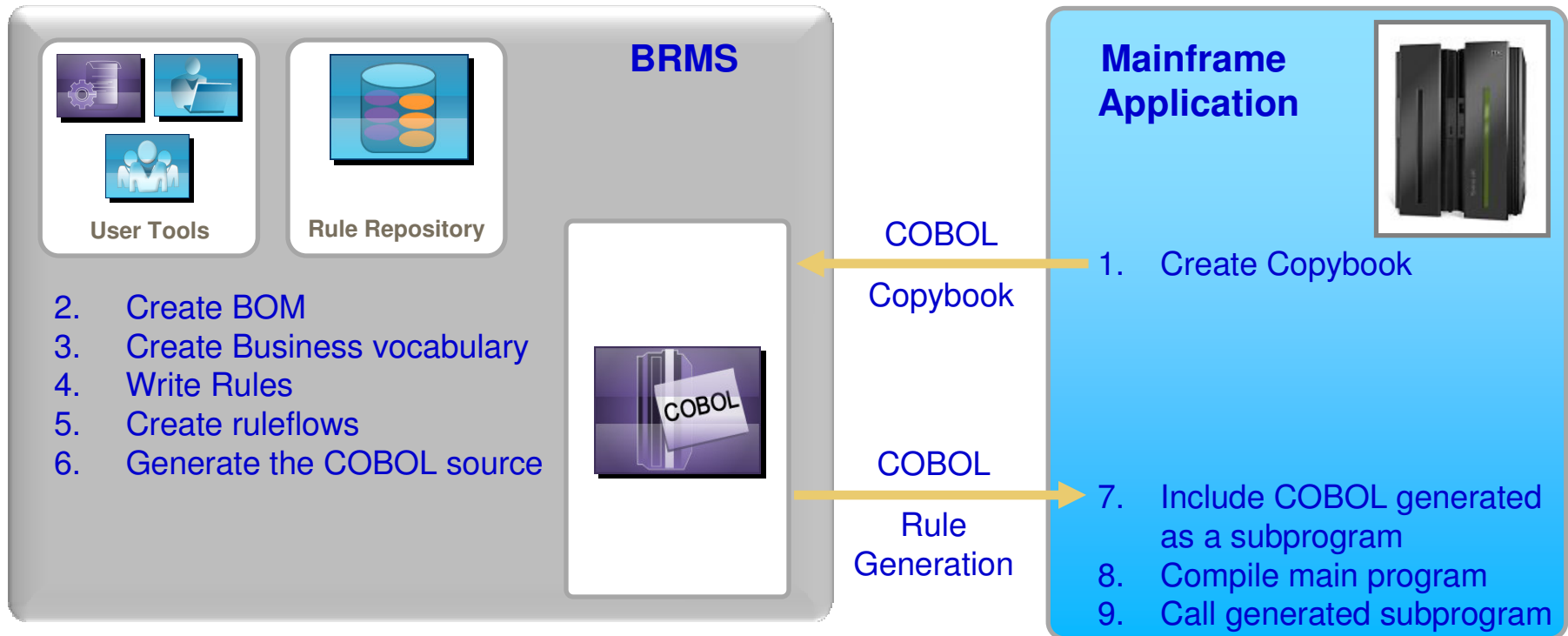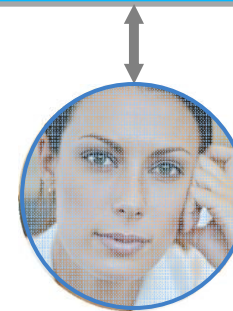 - Yet, run natively in the COBOL code

Rules for COBOL

Overview of Rules for COBOL

BRMS

Mainframe Application

User Tools

Rule Repository

2. Create BOM
3. Create Business vocabulary
4. Write Rules
5. Create ruleflows
6. Generate the COBOL source

COBOL
Copybook

1. Create Copybook

COBOL
Rule
Generation

7. Include COBOL generated as a subprogram
8. Compile main program
9. Call generated subprogram

Best of two worlds

Write, maintain & manage rules

Compile code & run system

ILOG BRMS for System z

Business Rule Management System

Rules are Defined, Analyzed and Maintained

User Tools

Rules are Stored and Shared

Rule Repository

Rules are deployed, executed and monitored in J2EE services
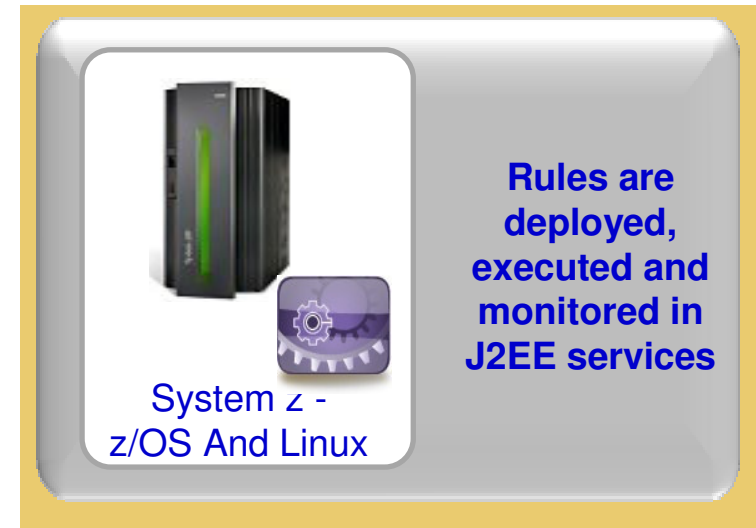
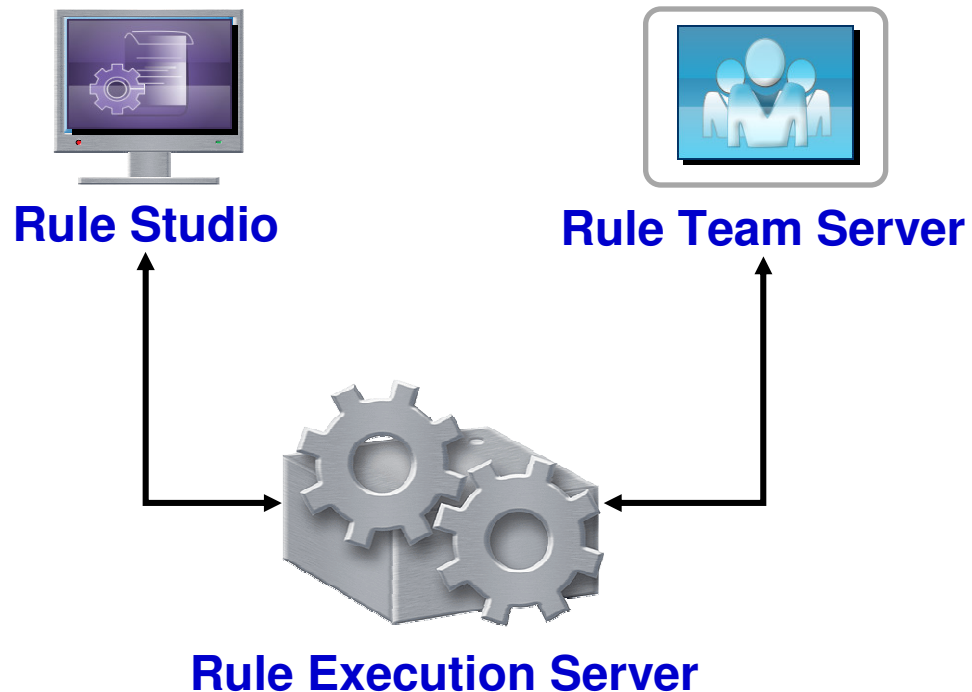System z - z/OS And Linux
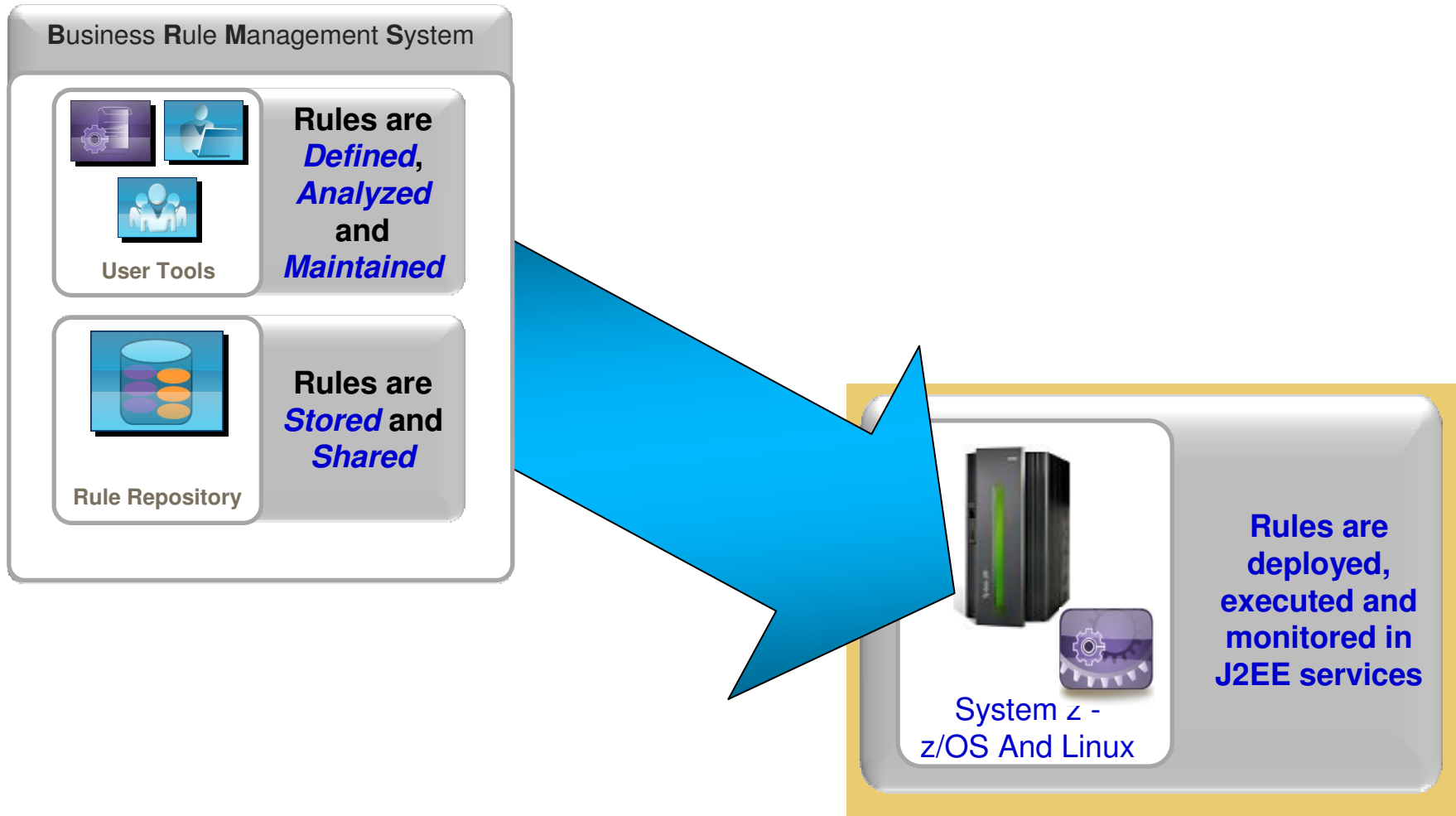
ILOG BRMS for System z

Automated Decisions are now:

- **Managed in ILOG BRMS**

  - Expressed and documented in business terms

  - Versioned

  - Able to change when the business requires it

  - Can be reused across the enterprise

System z - z/OS And Linux

Rules are deployed, executed and monitored in J2EE services

- **Generate Decision Services for SOA deployment**

Rule Execution Server

Managed Rule Service Execution

Rule Studio

Rule Team Server

Rule Execution Server

- Scalable
- Manageable
- Auditable
- Easy To Integrate

Execution Server: Integration

- **Standard-Based**
  - Deployed in Java EE or J2SE environment as a Resource Adapter
  - JSR-94 Compliant
  - JMX-based management interfaces
- **Integrate with any Java, XML, WSDL data source**
- **Exposes rule services as**
  - POJO stateful/stateless session beans
  - Java EE stateful/stateless session beans
  - Java EE MDB stateless beans
  - Web Services
  - IBM SCA Components

Options for Integrating CICS & JRules / Rules for COBOL

JRules via Web service	Use CICS support for Web services to make an external call out to a Rule Execution Server
JRules via MQ	Use CICS and MQ to make a JMS call out to a Rule Execution Server
JRules Java SE engine	Deploy a core JRules rule engine in a CICS JVM and access the rule engine directly with the JRules API
JRules Java SE Rule Execution Server	Deploy J2SE rule execution server in a CICS JVM and access via RES API (Currently untested)
Rules for COBOL	Deploy rules as a COBOL sub-program and link-edit this program into your application

CICS calling JRules via Web Service

WebSphere Application Server (WAS)

JRules

RuleApp

Web Service

SOAP / HTTP

SOAP PIPELINE

Application
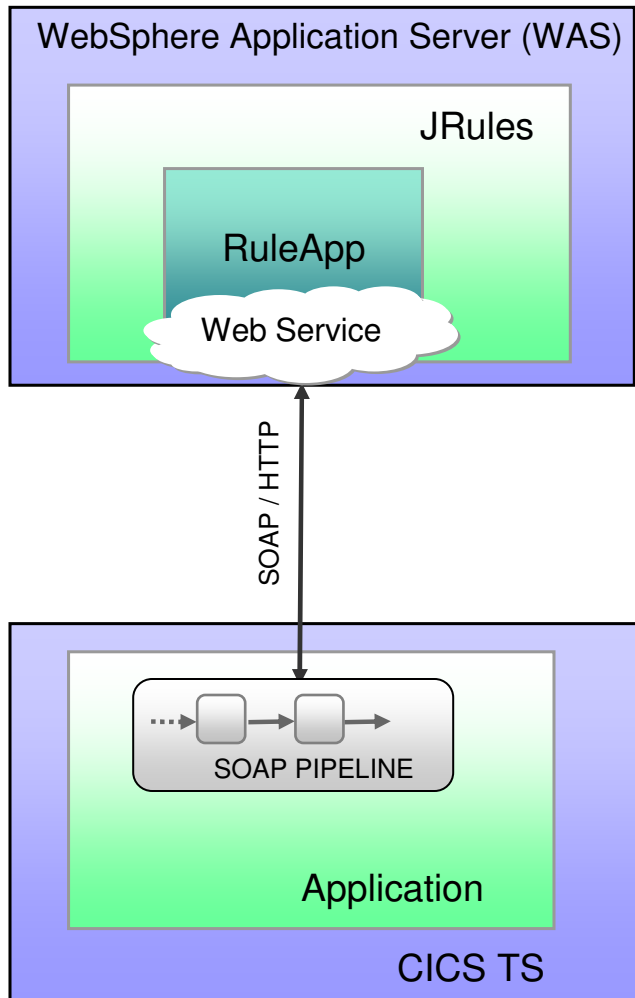
CICS TS

- **Scenario**
 Use CICS Web Services to call JRules hosted in WAS via a Web service
  - Full capability JRules Execution Server
    - e.g. hot deployment from Rule Team Server, Decision Warehousing, Web Management console, etc.
  - Allows CICS to share rules with other platforms
  - Requires knowledge of XML & Web service integration

- **Pros & Cons of this Approach**
  - ✓ Required support is available today
  - ✓ Standards-based integration
  - ✓ Decisions can be re-used/shared with other systems
  - ✓ Connection pooling to execution engine

  - ✗ Overhead of XML marshalling & network connection
  - ✗ Additional runtime to administer and maintain as the application processing is now split across multiple application servers

CICS calling JRules via MQ

WAS

JRules

RuleApp

JMS

MQ - XML

WebSphere MQ

Application
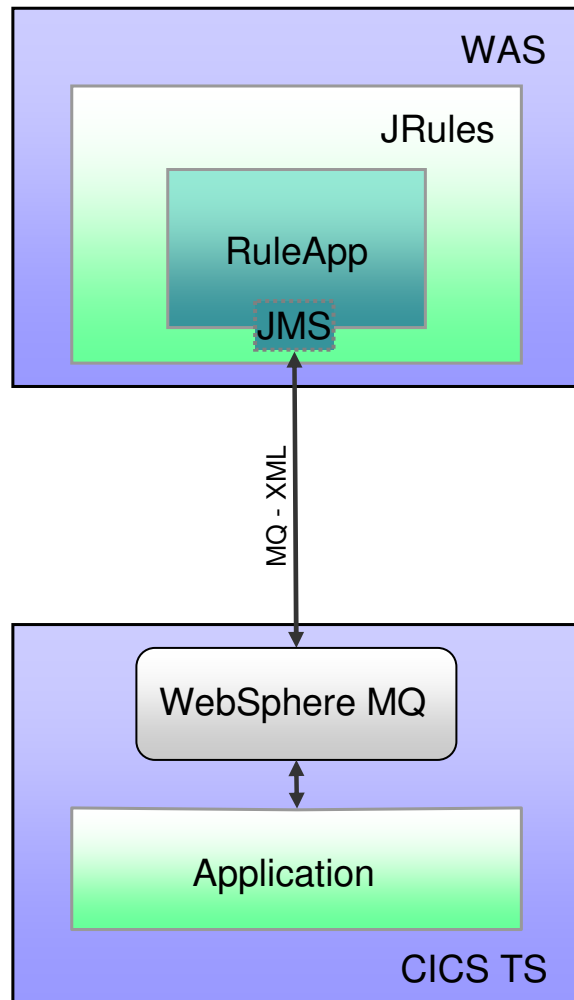
CICS TS

- **Scenario**

  Call a message-driven bean on WAS by sending a message from CICS via MQ.

  – Full capability JRules Execution Server
  – Allows CICS to share rules with other platforms
  – Requires knowledge of XML and JMS integration

- **Pros & Cons of this Approach**

  ✓ Required support is available today
  ✓ Standards-based integration (JMS)
  ✓ Decisions can be re-used/shared with other systems
  ✓ Connection pooling to execution engine

  ✗ Overhead of XML marshalling & network connection
  ✗ May potentially require custom code in the hosting environment
  ✗ Custom XML handling code is required
  ✗ Additional runtime to administer and maintain as the application processing is now split across multiple application servers

CICS calling JRules Java SE Rule Execution Server (RES)

CICS JVM

JRules Rule Execution Server

Rule Set

CICS Application
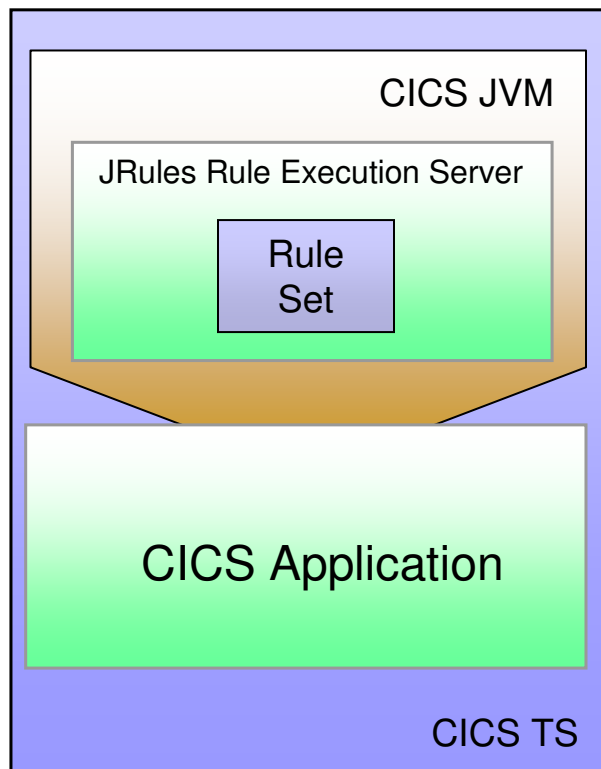
CICS TS

- **Scenario**

  CICS calls a JRules J2SE Rule Execution Server running inside a CICS JVM

  - Full capability JRules Execution Server

  - Requires CICS Transaction Server V4.1

- **Pros & Cons of this Approach**

  ✓ Better performance due to co-location of rule execution

  ✓ All administration contained within CICS

  ✓ Normal execution of J2SE Rule engine

  ✗ Non-standard installation & maintenance of JRules

  ✗ Requires external Web container for management functionality

  ✗ No externally shared decisions
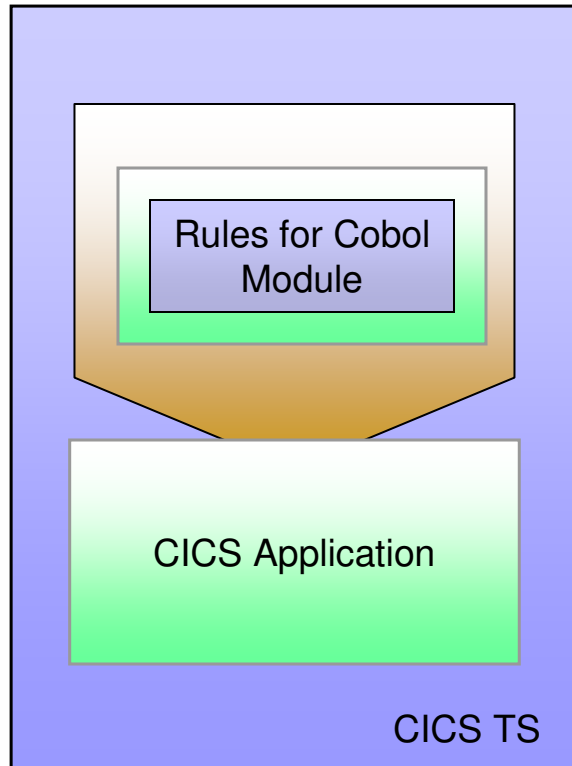
Rules for COBOL

Scenario

Use Rules for COBOL to generate a COBOL module that embodies the rules and executes within the CICS region

- CICS app can call the module via static or dynamic linking

- Can be invoked via EXEC CICS LINK

  - Redpaper: http://www.redbooks.ibm.com/abstracts/redp4589.html?Open
  - SupportPac: CA0A

Pros & Cons of this Approach

- ✓ Fits in easily with COBOL application architecture
- ✓ Better performance due to co-location of rule execution
- ✓ Easy to reuse the COBOL rules in batch as well as CICS environments

- × No Rule Execution Server management capabilities
- × No Decision Warehousing functionality
- × No externally shared decisions

Rules for Cobol Module

CICS Application

CICS TS

Further Information

- WebSphere ILOG BRMS

  http://www.ibm.com/software/integration/business-rule-management/

- Rules for COBOL and CICS using Channels and Containers interface

  http://www.redbooks.ibm.com/abstracts/redp4589.html?Open

- Analyst Paper
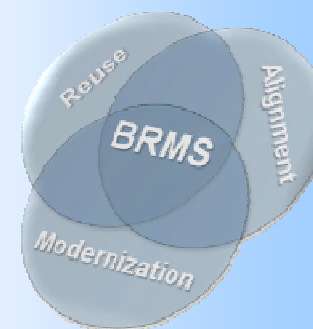 'Using Business Rules with CICS for greater flexibility and control'

  http://www.lustratusresearch.com/store/product/Using-business-rules-with-CICS-for-greater-flexibi,215,0.aspx
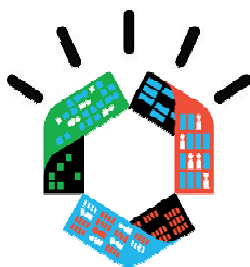
Can the benefits of Rule-Based Solutions be a reality for your CICS Applications?

Focus Group Session
Wednesday 17th 5:45PM to 7PM

Location: Room 204

IBM's WebSphere ILOG BRMS for CICS applications creates a new kind of responsive IT-business

Come to this focus session to discuss how business rules are handled today in CICS applications and explore how BRMS can effectively manage risk of business change and still preserve operational service levels throughout the business change cycle.