z/OS Applications
Adapting at the Speed of Business

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Business Process, Rules & Events for System z

IBM Corporation

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Session 13948

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in Boston

z/OS Applications - Adapting at the Speed of Business

Are your business people hammering on your door to make changes to the applications you have in production that they need, like now? Are these changes, often small ones, more about the business behavior of the application than any real structural change? Are they timed to your business cycle? Would you be interested if there was a way to handle those changes with shorter turn around times and a more stable application base while, perhaps, even establishing a common terminology between you and the business analysts?
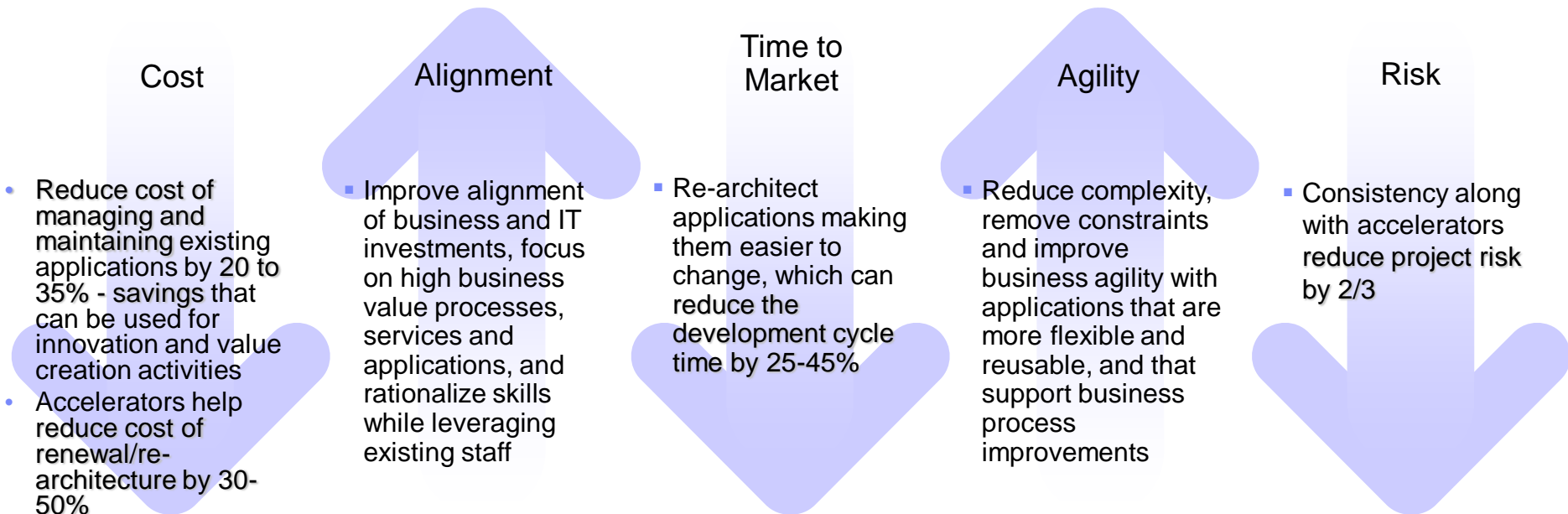
IBM has Decision Management technology (do you remember ILOG?) that can tightly integrate with your existing COBOL and PL/I applications to handle those business decisions that need to change with the marketplace. The result can be more stable applications performing as well or better than they do now while delivering the behavior the business wants. It can really reduce that nagging backlog of "small but important changes needed yesterday" that consumes your programming staff's time and resources.

This session will show how to use the IBM Operational Decision Manager to make your z/OS applications more responsive to the ever changing demands of the business teams. You will find this session educational, enlightening and, likely, quite entertaining.

► **Decision Management: A modernization option**

► **Incremental Modernization**

► **Introducing IBM Operational Decision Manager for z/OS**

► **Use cases**

► **Summary and next steps**

Complete your sessions evaluation online at SHARE.org/BostonEval

Application modernization enables clients to reduce total cost of ownership, and align business and IT investment while improving business agility

Cost

- Reduce cost of managing and maintaining existing applications by 20 to 35% - savings that can be used for innovation and value creation activities
- Accelerators help reduce cost of renewal/re-architecture by 30-50%

Alignment

- Improve alignment of business and IT investments, focus on high business value processes, services and applications, and rationalize skills while leveraging existing staff

Time to Market

- Re-architect applications making them easier to change, which can reduce the development cycle time by 25-45%

Agility

- Reduce complexity, remove constraints and improve business agility with applications that are more flexible and reusable, and that support business process improvements

Risk

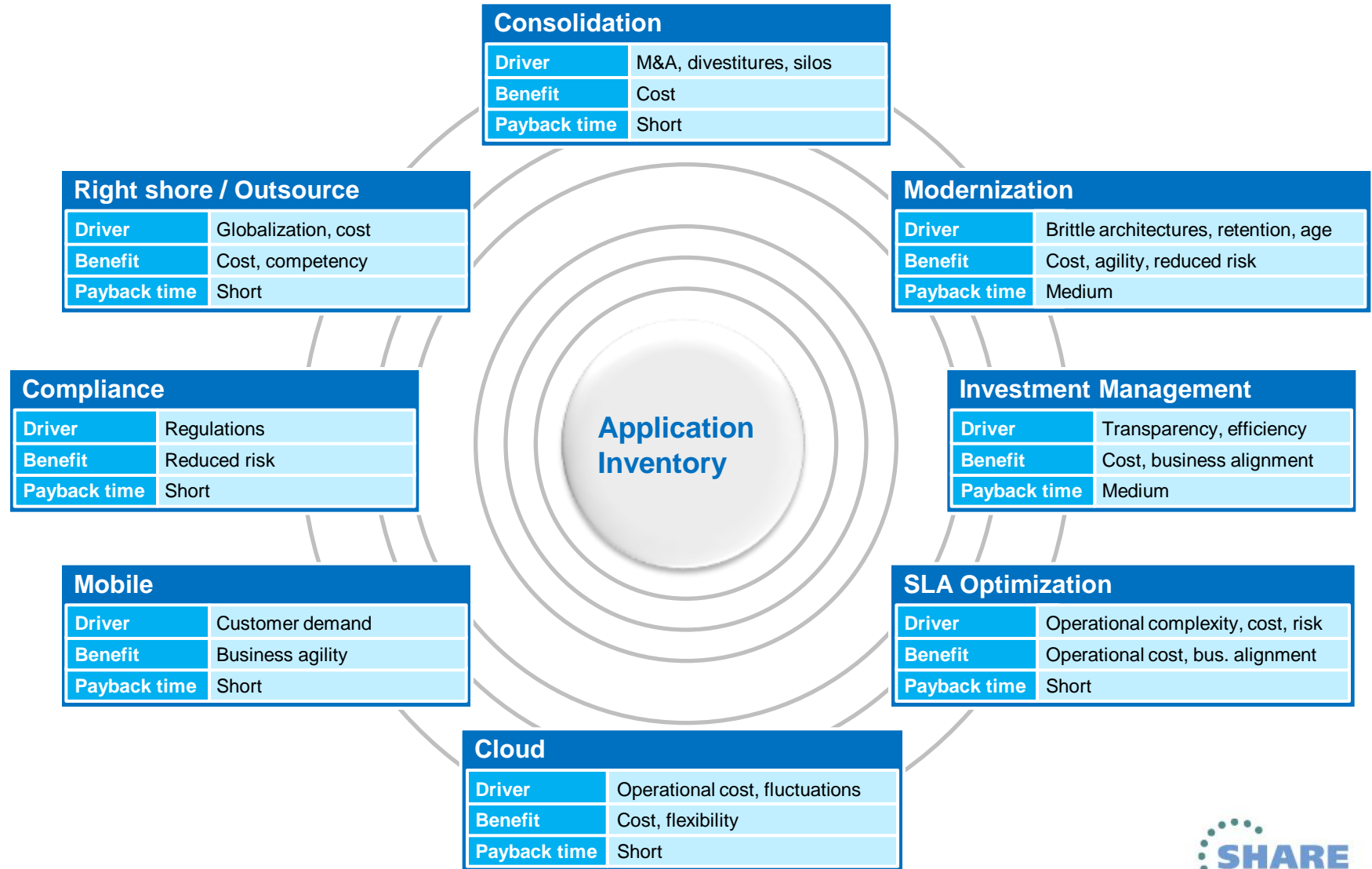- Consistency along with accelerators reduce project risk by 2/3

> *"The bottom-up view of application modernization — tactical improvements to individual applications with insufficient regard for any longer-term strategy — is toxic to the business. While tactical actions must continue, they need a guiding hand — an overarching strategy that brings balance to the whole feet, not preferential treatment to a favored geographic region or a politically powerful hub."*
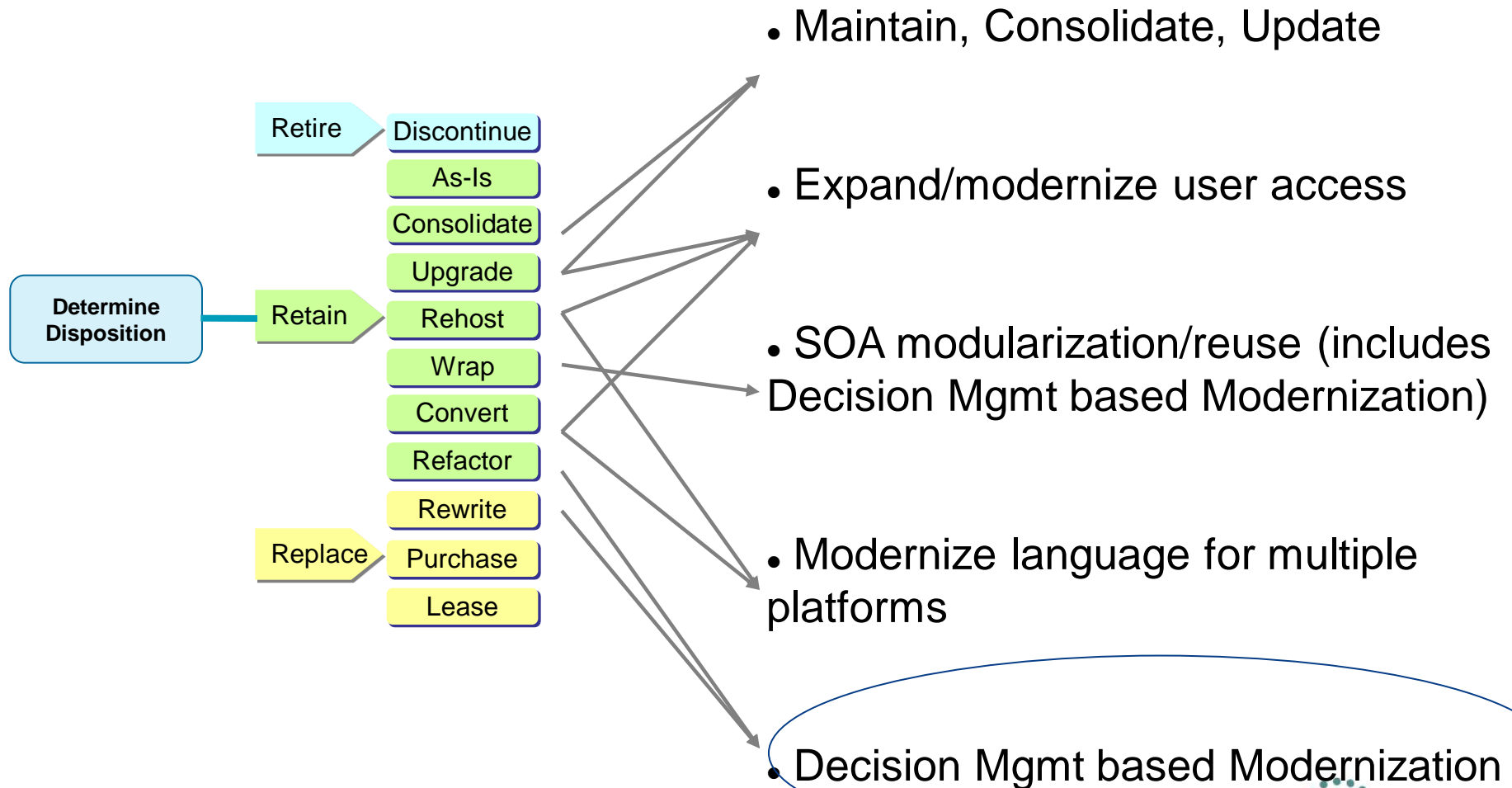>
> *"Justifying Application Modernization: Industry Analogies Explain Choices In A Business Context," Forrester Research Inc., March 17, 2009*

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IT optimization business outcomes
APM-driven scenarios

Consolidation

Driver	M&A, divestitures, silos
Benefit	Cost
Payback time	Short

Right shore / Outsource

Driver	Globalization, cost
Benefit	Cost, competency
Payback time	Short

Modernization

Driver	Brittle architectures, retention, age
Benefit	Cost, agility, reduced risk
Payback time	Medium

Compliance

Driver	Regulations
Benefit	Reduced risk
Payback time	Short

Application Inventory

Investment Management

Driver	Transparency, efficiency
Benefit	Cost, business alignment
Payback time	Medium

Mobile

Driver	Customer demand
Benefit	Business agility
Payback time	Short

SLA Optimization

Driver	Operational complexity, cost, risk
Benefit	Operational cost, bus. alignment
Payback time	Short

Cloud

Driver	Operational cost, fluctuations
Benefit	Cost, flexibility
Payback time	Short

Application Modernization: Having decided, what are the modernization options

Determine Disposition

Retire → Discontinue

Retain →
- As-Is
- Consolidate
- Upgrade
- Rehost
- Wrap
- Convert
- Refactor

Replace →
- Rewrite
- Purchase
- Lease

- Maintain, Consolidate, Update

- Expand/modernize user access

- SOA modularization/reuse (includes Decision Mgmt based Modernization)

- Modernize language for multiple platforms

- Decision Mgmt based Modernization

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Decision Management Modernization

- Business need: Business application "decision making" needs to adapt to changes in the marketplace, in time to make a difference

- Application Development drivers:
  - Cost savings
    More effective application development & maintenance with less business risk
    Consolidation/Restructure of existing applications, saving hardware & resources
  - Changing ratio of source inventory to development skills
    Forcing need for formal processes with an on line electronic repository
  - Be able to react to changes requested by business in days, not months

- *Modernization with Decision Management*: *Applying technology and process to gain increased "decision making" agility for business applications*

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

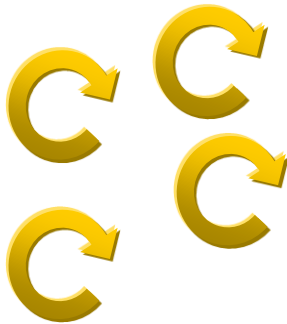

Applications

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**

Application Development Change Drivers

IT Sponsored Changes
- Technology upgrades
- Maintenance
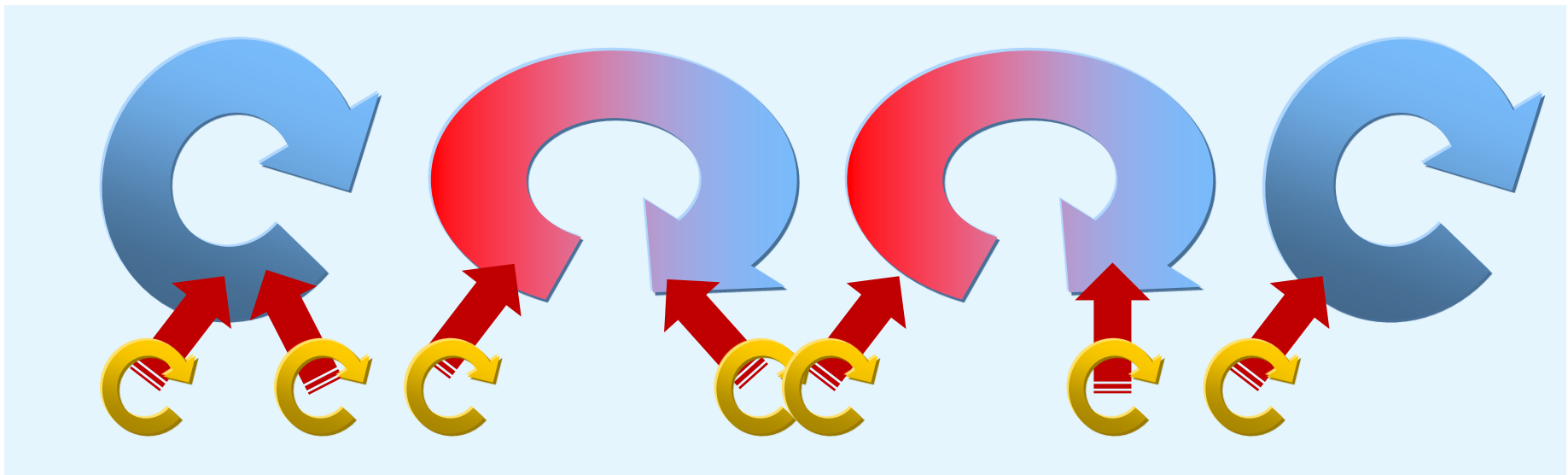- Capabilities enhancements
- New access channels

Business Sponsored Changes
- Regulatory changes
- Pricing policy
- Loyalty program updates and promotions
- Marketplace offers – for example, sales, new product incentives, etc.

Developer Plans:

Planned well ahead, laying out project that can take weeks or months

Business Decisions/Policies Changes:

Small ones that happen often, usually in reaction to business activities, though can be cyclic

Incrementally Modernize Applications

Use IBM ODM to unlock rules hidden in existing applications
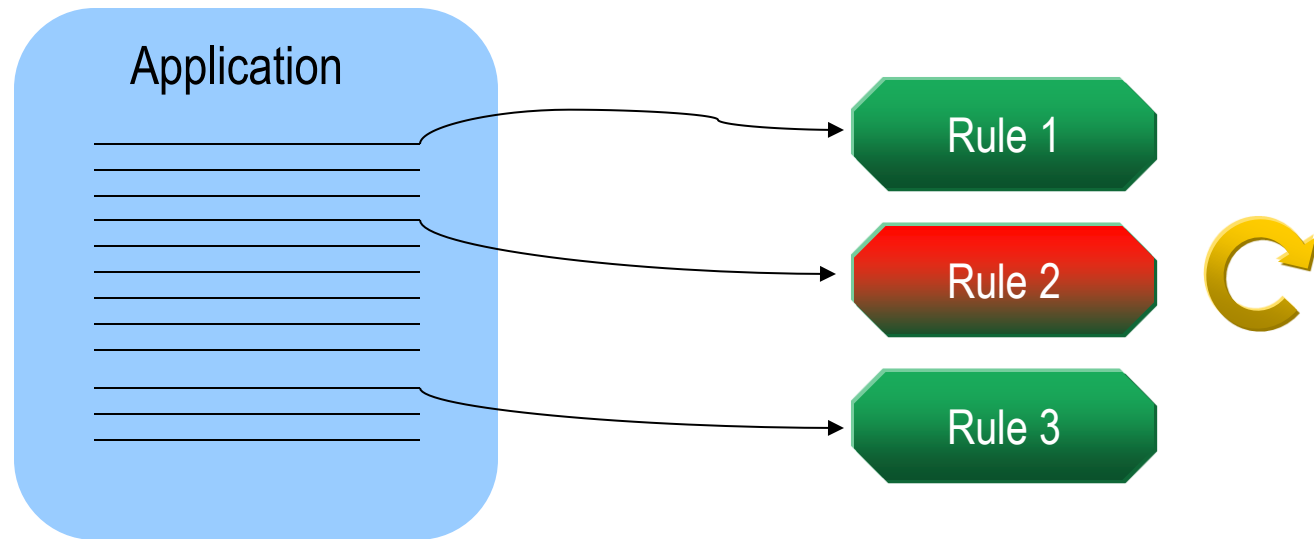
- Gradually pull out rules from existing applications
  - Focus on those business decisions that change fast and often
  - Re-express business rules in natural language
  - Manage and store them in a central facility
  - Does not require a "big bang" change
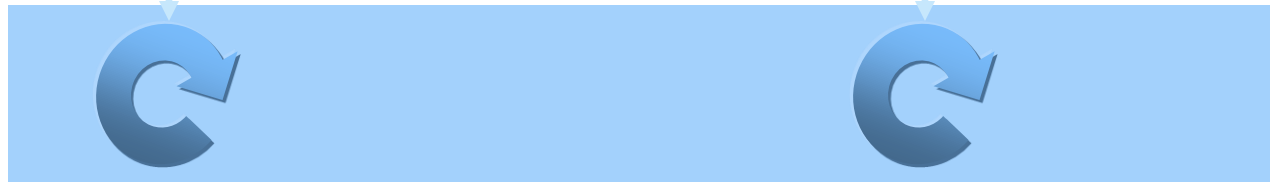
Redefined Application Change Cycle

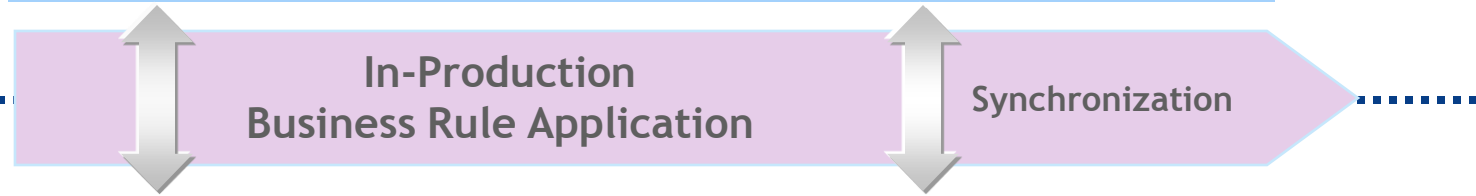**Functions / Tasks / Flow
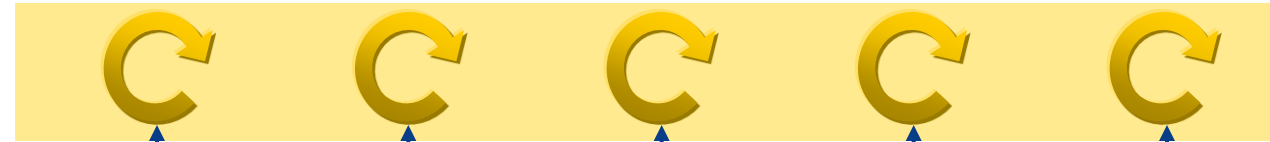changes in Weeks / Months**

**Application
Developer**

**Application
Development**

Functional
Requirements

Functional
Enhancements /
Platform Upgrades

**In-Production
Business Rule Application**

Synchronization

**Business Rule
Management**

Business
policies

Business policy
and rule
changes

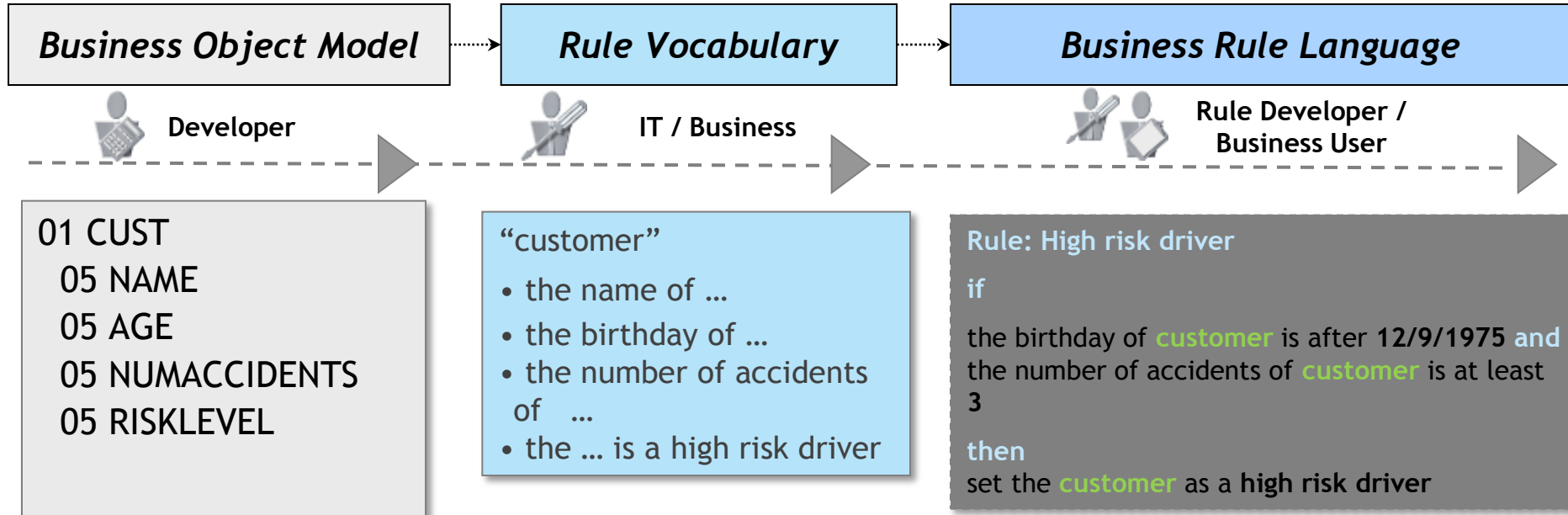Business policy
and rule
changes

Business policy
and rule
changes

Business policy
and rule
changes

Business & IT

**Decisions / Policies
Changes in Days / Weeks**

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Bringing IT and Business together

Business Object Model	→	Rule Vocabulary	→	Business Rule Language

Developer → **IT / Business** → **Rule Developer / Business User**

```
01 CUST
   05 NAME
   05 AGE
   05 NUMACCIDENTS
   05 RISKLEVEL
```

"customer"

- the name of …
- the birthday of …
- the number of accidents of   …
- the … is a high risk driver

Rule: High risk driver

if

the birthday of **customer** is after **12/9/1975** and
the number of accidents of **customer** is at least **3**

then
set the **customer** as a **high risk driver**

- Automatic generation of the rule vocabulary.
- Comprehensive industry focused business terms to define its data and associated actions.
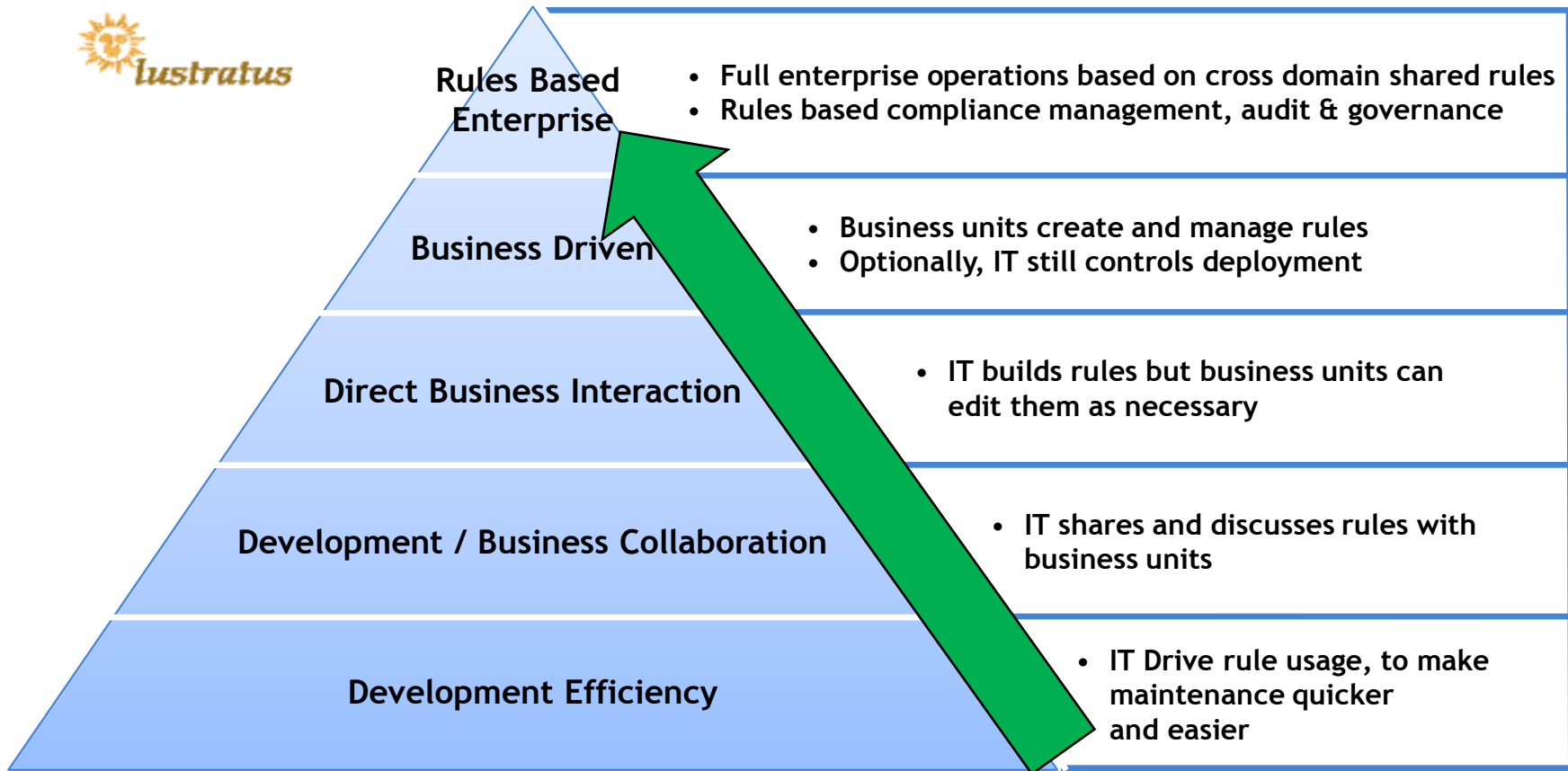- Localizable vocabulary

"client"

- le nom du …
- l'anniversaire du …
- Le nombre d'accidents du …
- le … est un conducteur à risque …

Règle: Conducteur à risque

si

L'anniversaire du **client** est après le **12/9/1975** et
le nombre d'accident du **client** est au moins **3**

alors
Classer le **client** comme **conducteur à risque**

The Lustratus BRMS Maturity Model

Rules Based Enterprise
- Full enterprise operations based on cross domain shared rules
- Rules based compliance management, audit & governance

Business Driven
- Business units create and manage rules
- Optionally, IT still controls deployment

Direct Business Interaction
- IT builds rules but business units can edit them as necessary

Development / Business Collaboration
- IT shares and discusses rules with business units

Development Efficiency
- IT Drive rule usage, to make maintenance quicker and easier

http://www.lustratusresearch.com/store/product/Using-business-rules-with-CICS-for-greater-flexibi,215,0.aspx

Challenges helped by Decision Management

*How can we ensure the **right** decision is being made at the right time?*

→ *Visibility*

*How can we **rapidly** respond to evolving market demands, competitive actions and regulatory requirements?*

→ *Collaboration*

*How can we ensure that business decisions are **managed** in a controlled environment?*

→ *Governance*
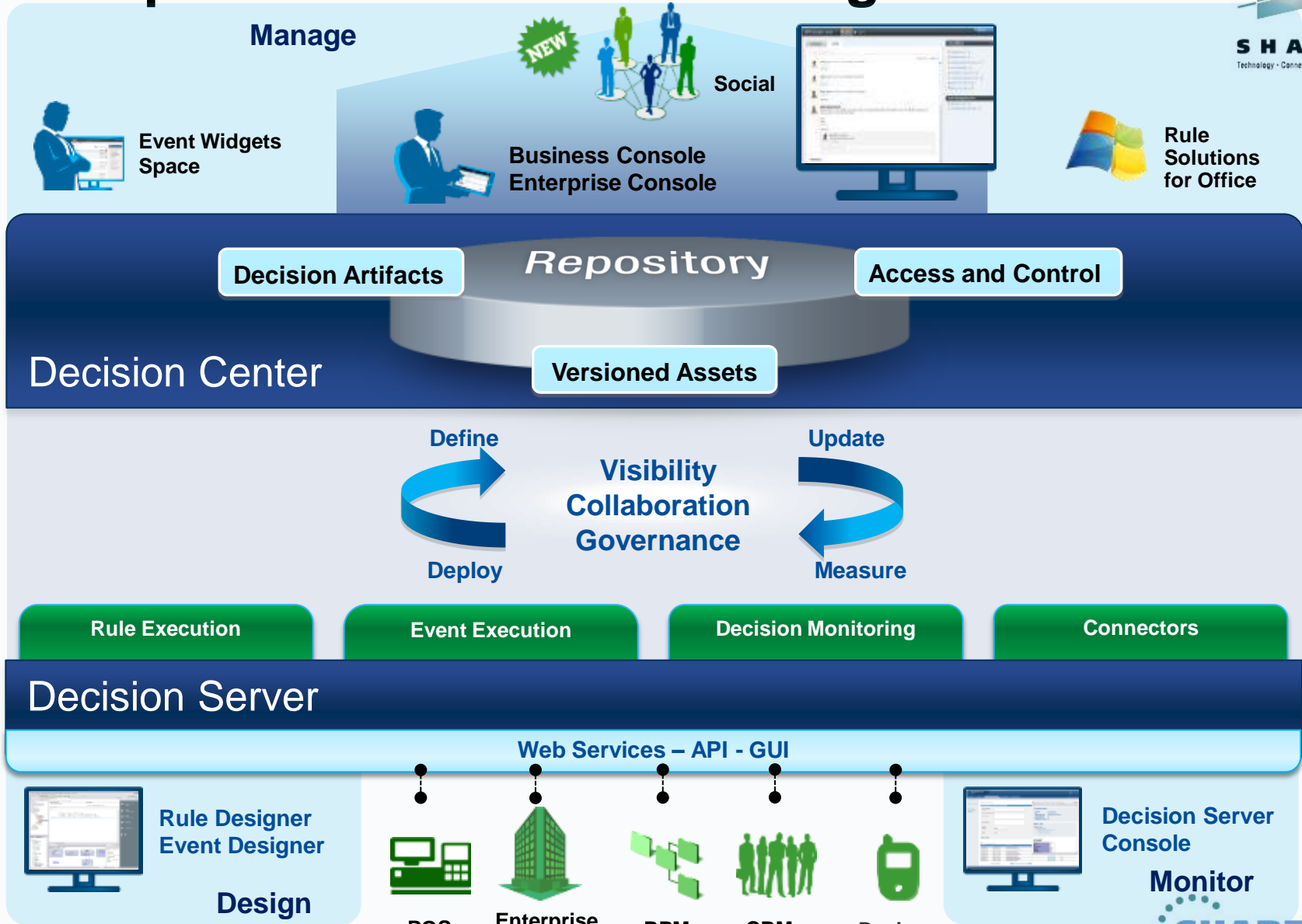
Business value of Decision Management

Challenges for most System z clients

1. **Consolidation, isolation, extension or extinction of COBOL & PL/I application portfolios**

2. **Be able to react to increasing pace, variety and volume of change requests**

3. **Sharing business rules across platforms & channels**

4. **Ensuring seamless business experience in migration/ application evolution**

Benefits of the Decision Management Approach

- ✓ **Cost savings**
  - – Shorter change cycle, without increased business risk
  - – Rule engine processing is zAAP eligible
- ✓ **Improved agility**
  - – Improved Time to Market
  - – Manage business decisions in natural language
  - – Decouple development and business decision change lifecycles
- ✓ **Single version of the Truth**
  - – Consolidated and shared expression of business policy
  - – Maintainable with a Center of Competency model
- ✓ **Incremental Adoption**
  - – Deploy decision methodology one decision at a time
  - – Focus on decisions that need to change often & quickly
  - – Expand adoption of "market validated" decisions

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IBM Operational Decision Manager

Manage

NEW

Social

Event Widgets Space

Business Console
Enterprise Console

Rule Solutions for Office

Decision Center

Repository

Decision Artifacts

Access and Control

Versioned Assets

Define

Update

**Visibility
Collaboration
Governance**

Deploy

Measure

Rule Execution

Event Execution

Decision Monitoring

Connectors

Decision Server

Web Services – API - GUI

Rule Designer
Event Designer

Design

POS

Enterprise Application

BPM

CRM

Devices

Decision Server Console

Monitor

17

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Decision Management on z/OS a Short History

- December 2011- V7.5
  - Established Decision Server and Decision Center
  - CICS and z/OS deployment options with zRule Execution Server (zRES)
  - Rules in generated COBOL
- June 2012 – V8.0
  - Testing, Simulation and Decision Warehouse support for COBOL rules
  - IMS Batch support using zRes
- December 2012 – V8.0.1
  - New Decision Engine for zRES
    - Major throughput improvements with significantly less memory requirements
    - Rule set optimization – drive only the rules needed for the decision
  - IMS MPP Toleration using zRES
- June 2013 – V8.5
  - Decision Engine available on WAS for z/OS
  - PL/I Support for zRES
  - Persistent connections for IMS MPPs
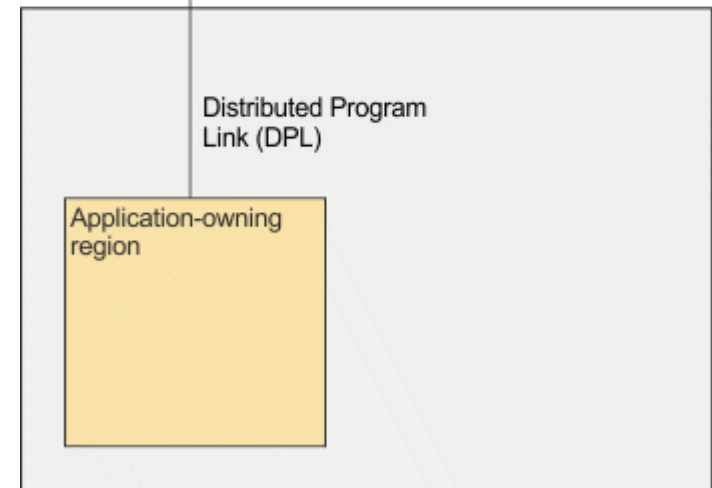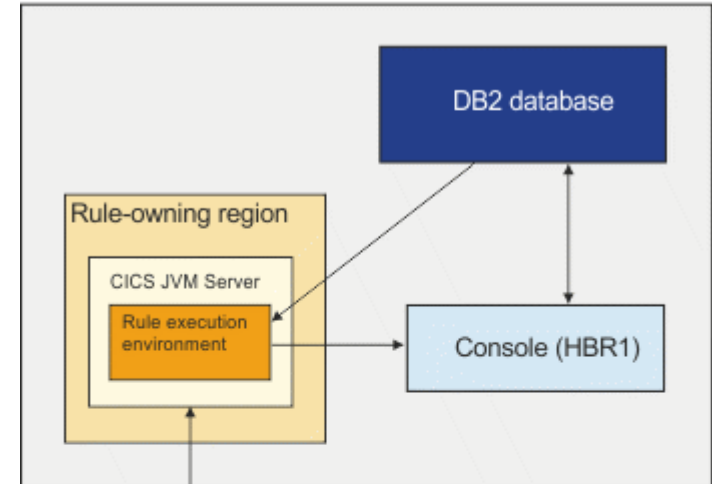 - Simpler Deployment Configuration

What's New in IBM Operational Decision Manager for z/OS V8.5

- PL/I support
- Decision Engine available in WAS for z/OS
- Stand alone console
- Improved configuration process
- CICS rule-owning regions
- Improved performance

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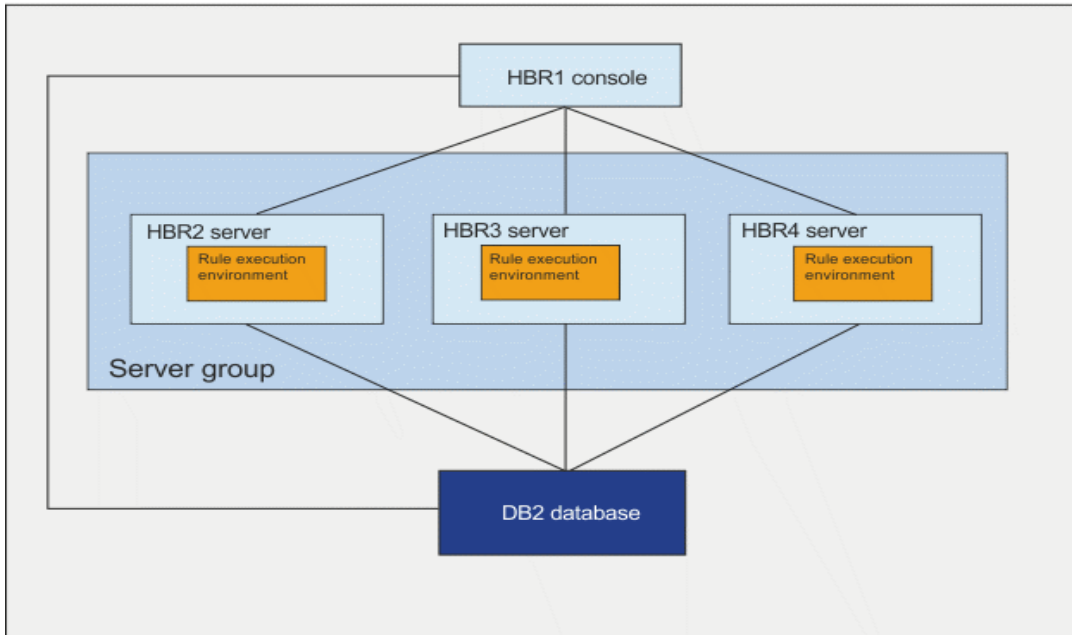
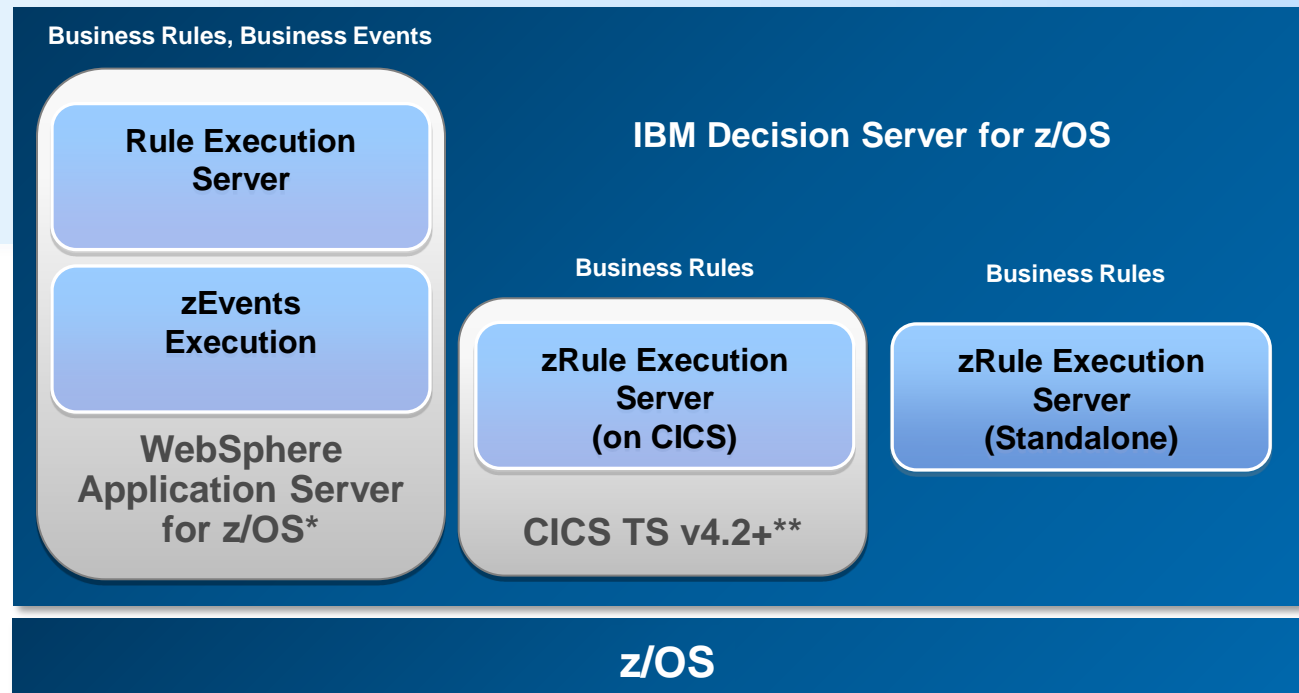# IBM Operational Decision Manager for z/OS Runtime options

Decisions can be invoked from existing CICS and IMS applications

Runtime support for COBOL data types

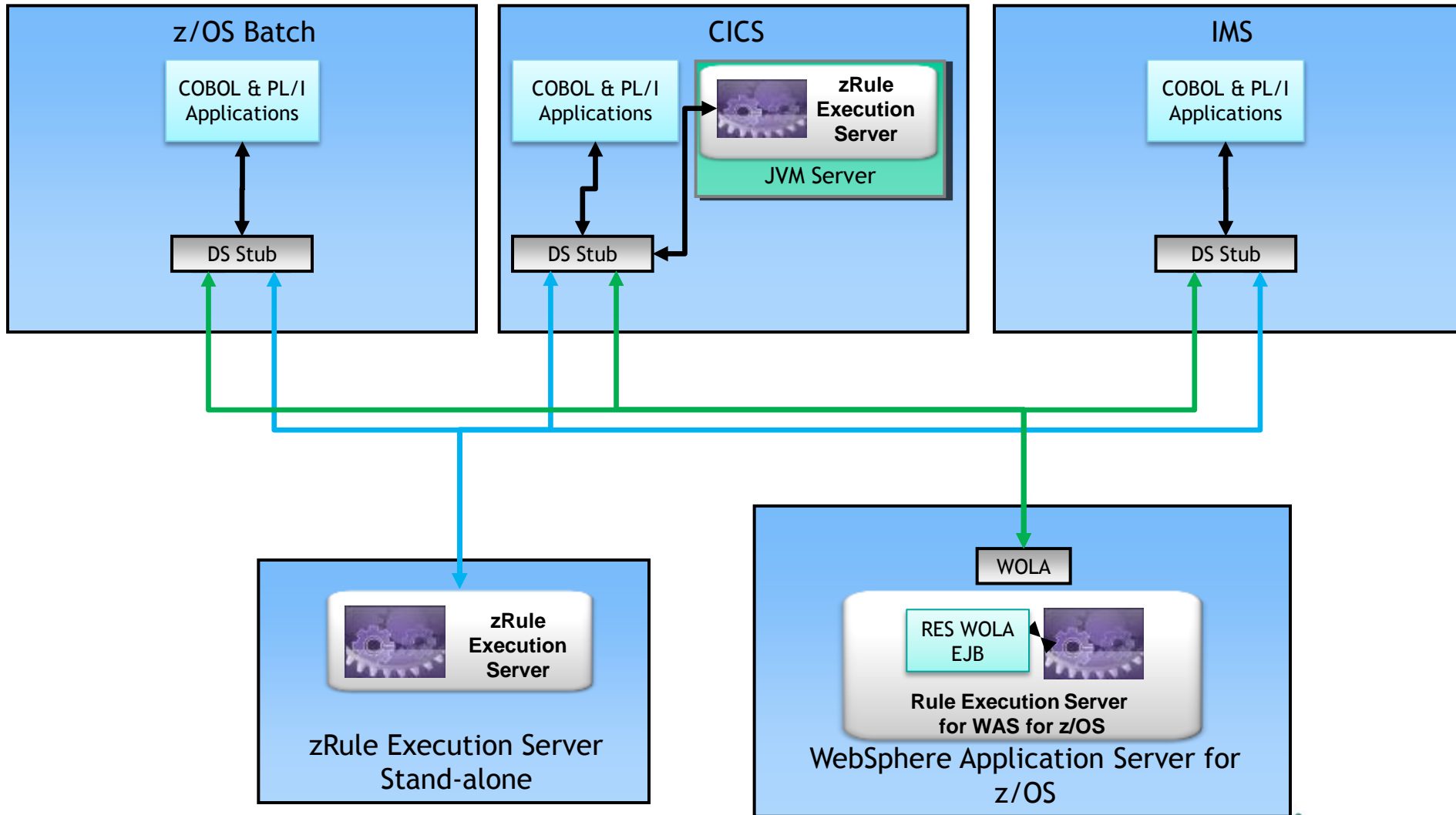Flexible runtime deployment to fit any System z environment:

- Deployed on WebSphere Application Server for z/OS
- Deployed on CICS TS 4.2+ and above (JVM server environment)
- Deployed standalone to z/OS

Business Rules, Business Events

IBM Decision Server for z/OS

Rule Execution Server

zEvents Execution

WebSphere Application Server for z/OS*

Business Rules

zRule Execution Server (on CICS)

CICS TS v4.2+**

Business Rules

zRule Execution Server (Standalone)

z/OS

*   WAS for z/OS limited use entitlement included with Decision Server

** CICS Transaction Server licenses purchased separately

Decision Invocation Options on z/OS

z/OS Batch

COBOL & PL/I Applications

DS Stub

CICS

COBOL & PL/I Applications

zRule Execution Server

JVM Server

DS Stub

IMS

COBOL & PL/I Applications

DS Stub

zRule Execution Server

zRule Execution Server Stand-alone

WOLA

RES WOLA EJB

Rule Execution Server for WAS for z/OS

WebSphere Application Server for z/OS

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zRES Programming API

- **HBRCONN**

  - Establish the necessary linkage to the zRES

  - For CICS and IMS persistent connection
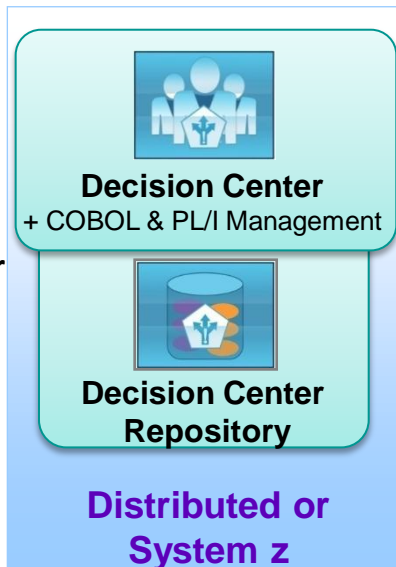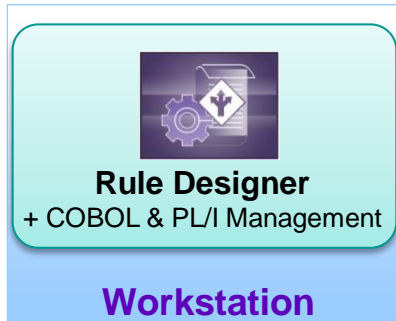
    environments, this call is essentially ignored

- **HBRRULE**

  - Call the Execution Server for a Decision

  - Assemble the data context

  - Call the zRES with the data

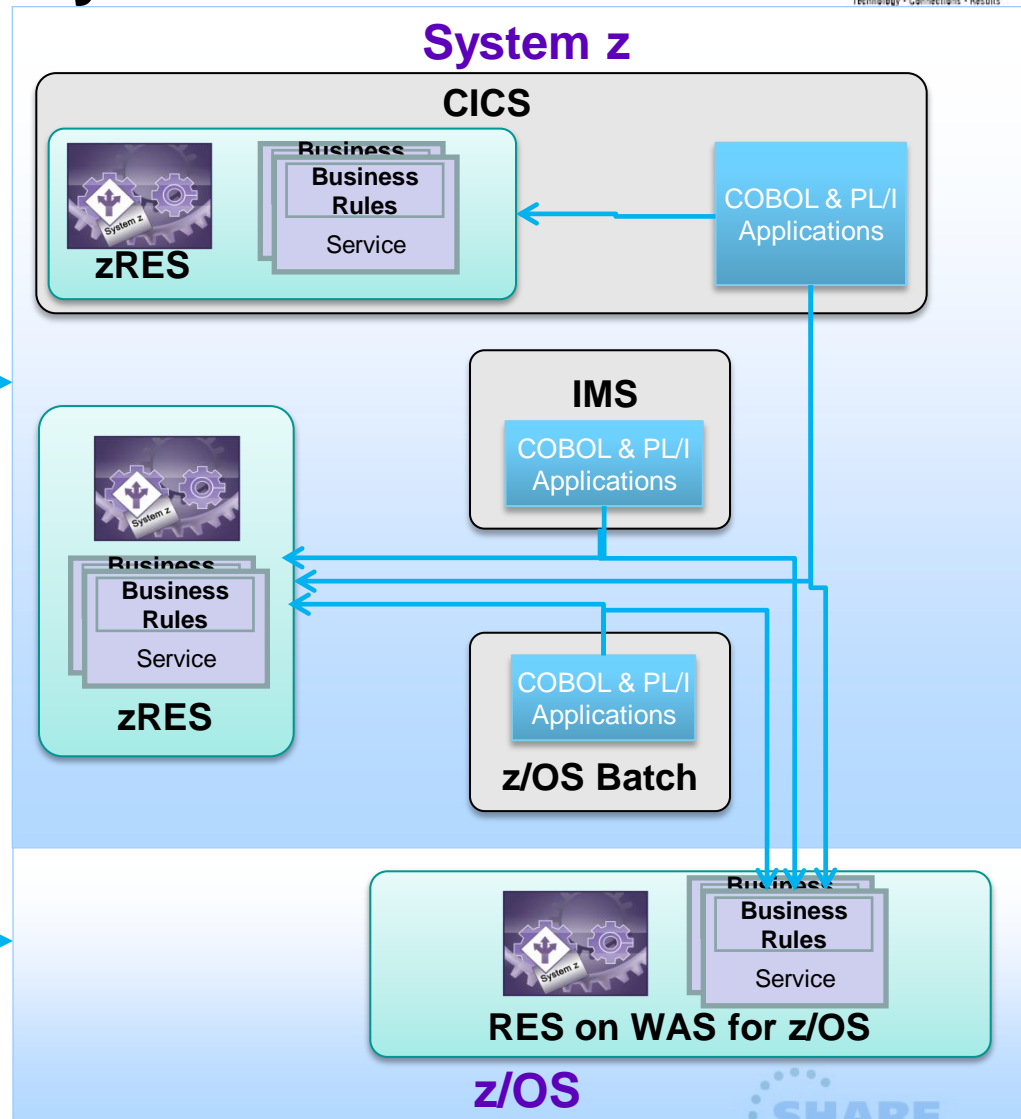 - Get the decision result

- **HBRDISC**

  - Remove the linkage to zRES

  - For CICS and IMS persistent connection

    environments, this call is essentially ignored

```
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 +2.
   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-FLAGS            PIC S9(8) COMP  VALUE +1.
   10 HBRA-CONN-INSTANCE         PIC X(24).
   10 HBRA-CONN-RULE-COUNT       PIC S9(8) COMP.
   10 HBRA-CONN-RULE-MAJOR-VERSION PIC S9(8) COMP.
   10 HBRA-CONN-RULE-MINOR-VERSION PIC S9(8) COMP.
   10 HBRA-CONN-RULEAPP-NAME     PIC X(256).
   10 HBRA-RESPONSE-AREA.
      15 HBRA-RESPONSE-MESSAGE    PIC X(512).
   10 HBRA-RA-PARMETERS.
      15 HBRA-RA-PARMS  OCCURS 32.
         20 HBRA-RA-PARAMETER-NAME    PIC X(48).
         20 HBRA-RA-DATA-ADDRESS      USAGE POINTER.
         20 HBRA-RA-DATA-LENGTH       PIC 9(8) BINARY.
   10 HBRA-RESERVED.
      15 HBRA-RESERVED02           PIC X(12).
      15 HBRA-RESERVED03           PIC X(64).
      15 HBRA-RESERVED04           PIC X(64).
      15 HBRA-RESERVED05           PIC X(128).
      15 HBRA-RESERVED06           PIC X(128).
```

Decision Management on System z: Comprehensive Flexibility

Architect, Application Developer

Rule Designer
+ COBOL & PL/I Management

Workstation

Business Analyst, Business Manager

Decision Center
+ COBOL & PL/I Management

Decision Center Repository

Distributed or System z

Deploy

System z

CICS

Business
Business Rules
Service
zRES

COBOL & PL/I Applications

IMS
COBOL & PL/I Applications

Business
Business Rules
Service
zRES

COBOL & PL/I Applications
z/OS Batch

Business
Business Rules
Service
RES on WAS for z/OS

z/OS

Large Northeast Personal Lines P&C Insurance Company

Challenges:

- IT inertia such that changes could only be done annually
- Governing policies and rules had grown brittle
- Need to control/stem premium "leakage"

Benefit:

- Business
  - Reduce cycle time between submission and quote
  - Control Premium Leakage and streamline the New Business process to help drive revenue
  - Improve risk segmentation and risk selection
  - Internal underwriting rules are consistently applied and centrally managed
  - Real Time process insight and metrics dashboards
- IT
  - Decreases the cost, time and effort to update/create new business rules
  - Enables non-developers to complete rules authoring and validation
  - Automated decision responses to applications and business systems
- BVA showed:
  - $6M revenue growth over 5 years
  - $2M in reduced operational costs
  - $1.7M in reduced IT costs

Project Approach

Lead with a great demo to a CIO sponsored Line of Business gathering

Engaged all the stake holders via discovery workshops

Focused in on one key business area

Provided a detailed and sound Business Value Assessment focused on that business area

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Large Northeast Financial Services Company

Challenges:

- Current application change request is a 9 month process from initial request to production roll-out
- Number and frequency of changes increasing exponentially (regulation and competitive threat)
- System z skills declining or at risk
- Current rules methodology (home grown table driven) cumbersome and not auditable

Benefit:

- Implemented Business Rules for z/OS to replace home grown tool
- Deployed in support of Online systems and Batch
- Reduced Development life cycle due to new rule testing methodology from 6 months to 2 weeks
- Reduced overall implementation time from 9 months to 6 weeks (integration test 4 weeks)
- Seeing a HUGE reduction in overall cost
- Increased top line revenue, more responsive to the business and customer

Project Approach

Designed a decision management solution that conformed to Government regulatory requirements

Integrate the Java batch capabilities of Compute Grid and the Decision Management capabilities of Business Rules for z/OS

Running Decision engine in parallel to original application code

Looking for differences and exceptions

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ODM for System z enables smart organizations to capitalize on modernization and innovation

- **Faster Time to Market:**
  Ability to react to changes in a fast pace competitive marketplace though Business events and rules

- **Lower cost of maintenance**
  - Leading to improvement operational efficiency and total cost of ownership

- **Better visibility and control**
  - Leading to improvement to better corporate governance

- **Ability to implement the best rules for the best outcome**
  - Business users can see, understand and have the appropriate tools to support the needs of the organization by maximizing their IT investment

- **Ability to manage and document business decisions executed in System z applications**
  - Authoring rules for COBOL & PL/I applications in business terminology
  - Ability to share business rules with Java and other COBOL & PL/I applications
  - Integrate seamlessly with existing COBOL & PL/I applications

See Operational Decision Manager - *In Action*

- Google "*9 business decisions you can make better*" 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?

- http://www.ibm.com/operational-decision-management
  - Shortcut: http://ibm.com/ibmodm
  - IBM Operational Decision Manager 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
  - Flexible Decision Automation for Your zEnterprise with Business Rules and Events
  - Batch Modernization on z/OS
  - Patterns: Integrating WebSphere ILOG JRules with IBM Software

- IBM Operational Decision Management YouTube demo

- Top 10 Business Use Cases for Operational Decision Management

- Good Decision! Decision Management blog

System z Social Media Channels

- **Top Facebook pages related to System z:**
    - **IBM System z**
    - **IBM Academic Initiative System z**
    - **IBM Master the Mainframe Contest**
    - **IBM Destination z**
    - **Millennial Mainframer**
    - **IBM Smarter Computing**

- **Top LinkedIn groups related to System z:**
    - **System z Advocates**
    - **SAP on System z**
    - **IBM Mainframe- Unofficial Group**
    - **IBM System z Events**
    - **Mainframe Experts Network**
    - **System z Linux**
    - **Enterprise Systems**
    - **Mainframe Security Gurus**

- **Twitter profiles related to System z:**
    - **IBM System z**
    - **IBM System z Events**
    - **IBM DB2 on System z**
    - **Millennial Mainframer**
    - **Destination z**
    - **IBM Smarter Computing**
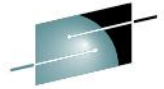
- **YouTube accounts related to System z:**
    - **IBM System z**
    - **Destination z**
    - **IBM Smarter Computing**

- **Top System z blogs to check out:**
    - **Mainframe Insights**
    - **Smarter Computing**
    - **Millennial Mainframer**
    - **Mainframe & Hybrid Computing**
    - **The Mainframe Blog**
    - **Mainframe Watch Belgium**
    - **Mainframe Update**
    - **Enterprise Systems Media Blog**
    - **Dancing Dinosaur**
    - **DB2 for z/OS**
    - **IBM Destination z**
    - **DB2utor**

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