

# IBM SolutionsConnect 2013

L'IBM TechSoftware nouvelle génération

28, 29 et 30 août  
IBM Client Center Paris



#solconnect13

*Transformez vos opportunités en succès*



# IBM SolutionsConnect 2013

L'IBM TechSoftware nouvelle génération

## The Future of Mainframe Applications Part 2

Hélène Lyon

IBM Distinguished Engineer

zMiddleware Technical Executive, SWG



Ce XXI<sup>ème</sup> siècle n'annonce pas la fin des besoins de services transactionnels ou batchs. Il est donc nécessaire de continuer à tirer parti au mieux de vos assets applicatifs gérés à ce jour par CICS et IMS. Cette session vous proposera un ensemble de pistes vous permettant de mieux servir vos besoins d'entreprise tout en adoptant les nouveaux services ou processus disponibles autour du z ou dans le z

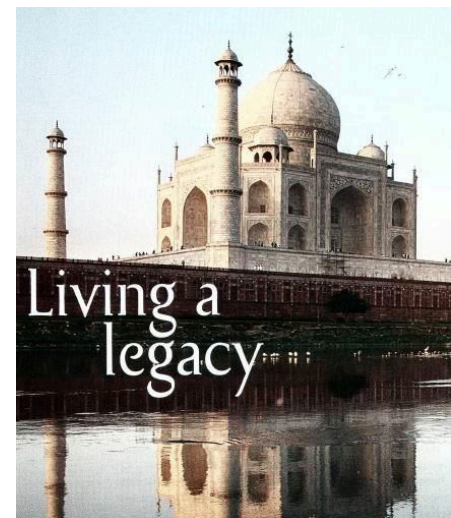
# IT budgets remain flat to negative in 2013

*Top priorities continue to be updating existing applications*

## Top 10 CIO Business and Technology Priorities in 2013

Top 10 Business Priorities	Ranking	Top 10 Technology Priorities	Ranking
Increasing enterprise growth	1	Analytics and business intelligence	1
Delivering operational results	2	Mobile technologies	2
Reducing enterprise costs	3	Cloud computing (SaaS, IaaS, PaaS)	3
Attracting and retaining new customers	4	Collaboration technologies (workflow)	4
Improving IT applications and infrastructure	5	Legacy modernization	5
Creating new products and services (innovation)	6	IT management	6
Improving efficiency	7	CRM	7
Attracting and retaining the workforce	8	Virtualization	8
Implementing analytics and big data	9	Security	9
Expanding into new markets and geographies	10	ERP Applications	10

SaaS = software as a service; IaaS = infrastructure as a service; PaaS = platform as a service  
Source: Gartner Executive Programs (January 2013)





- **Migration off the mainframe may or may not be the right decision for your organization.**
- **Infrastructure and operations leaders must understand the implications of key factors such as time, cost, workload, business impact, capacity planning, staffing skills and tools.**

If Cost Is the Driving Factor, Ascertain Whether You Have Optimized Your Mainframe Environment

Determine the Time It Will Take to Migrate Completely Off the Mainframe

Recognize That Cost Savings Are Not Necessarily Commensurate With the Percentage of MIPS Offloaded

Ease of Migration Is More a Function of the Nature of the Workload and the Number of Applications Than It Is the Number of MIPS

Ascertain the Impact on Your Business Continuity/Disaster Recovery Plans

Plan for Historical Preservation of Data, Optionally Including Access to Content in the Absence of Original Applications

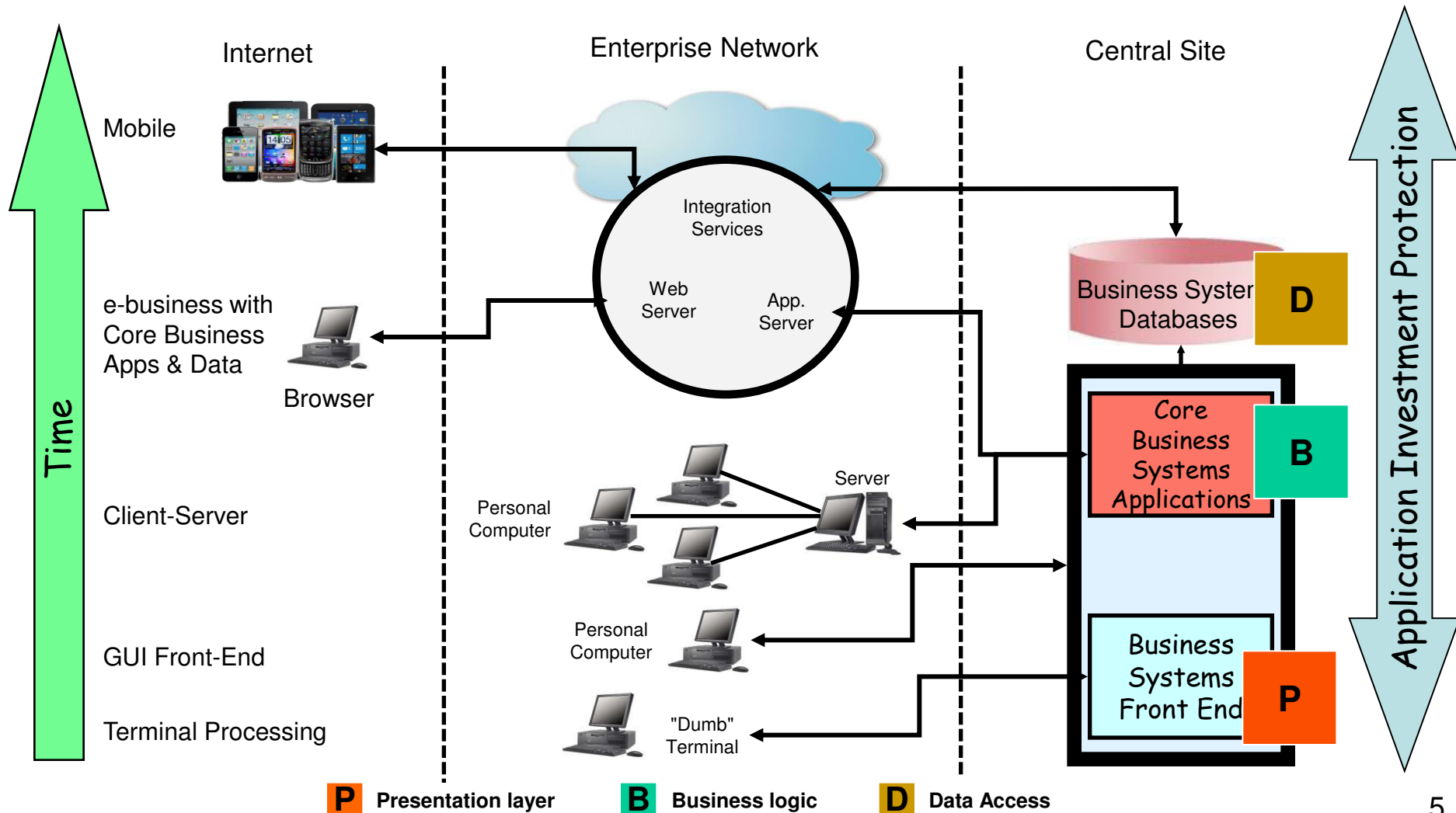
Know That Tools to Manage and Virtualize on Other Platforms May Not Be as Sophisticated as Those on the Mainframe

Determine What Modernization Means to the Business

<http://www.gartner.com/technology/reprints.do?id=1-1FTBDC8&ct=130530&st=sb>

# Mainframe Legacy – Why?

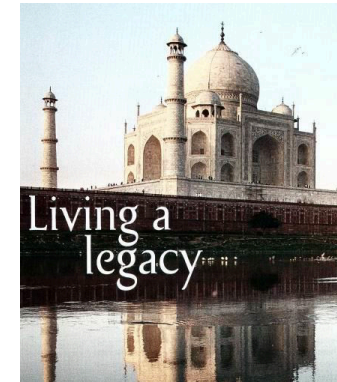
*(R)evolution in z/OS Core Middleware provides Unparalleled Scalability and Availability while protecting Investment*



# Leading Drivers for zApps Transformation

*What is the Value of your "Legacy" Application Portfolio?  
Why transformation is needed?*

- Increase business value by incorporating new technologies such as Web 2.0, business rules, business analytics and more
- Provide better agility, resulting in a better time to value by improving the application architecture and exploiting middleware wherever possible
- Reduce cost by introducing higher productivity tooling for development, test and deployment
- Avoid risk by improving the maintainability of the application
- Maintain operational efficiency & security

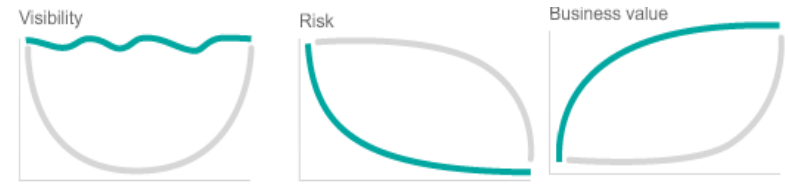


***"76% of I.T budgets are spent on Maintenance, leaving only 24% for New Investments."***  
--- Forrester Research in 2005 ---

Data indicate that **60-80%** of the cost of software development is in rework, that is, fixing defects that are found during testing.

Software Engineering Institute 2013 <http://www.sei.cmu.edu/about/message/>

## Agile development vs. traditional development



# Business Application Modernization – Embrace New Technologies



Mobile, Web Services



Business Process Management



Rules, Analytics



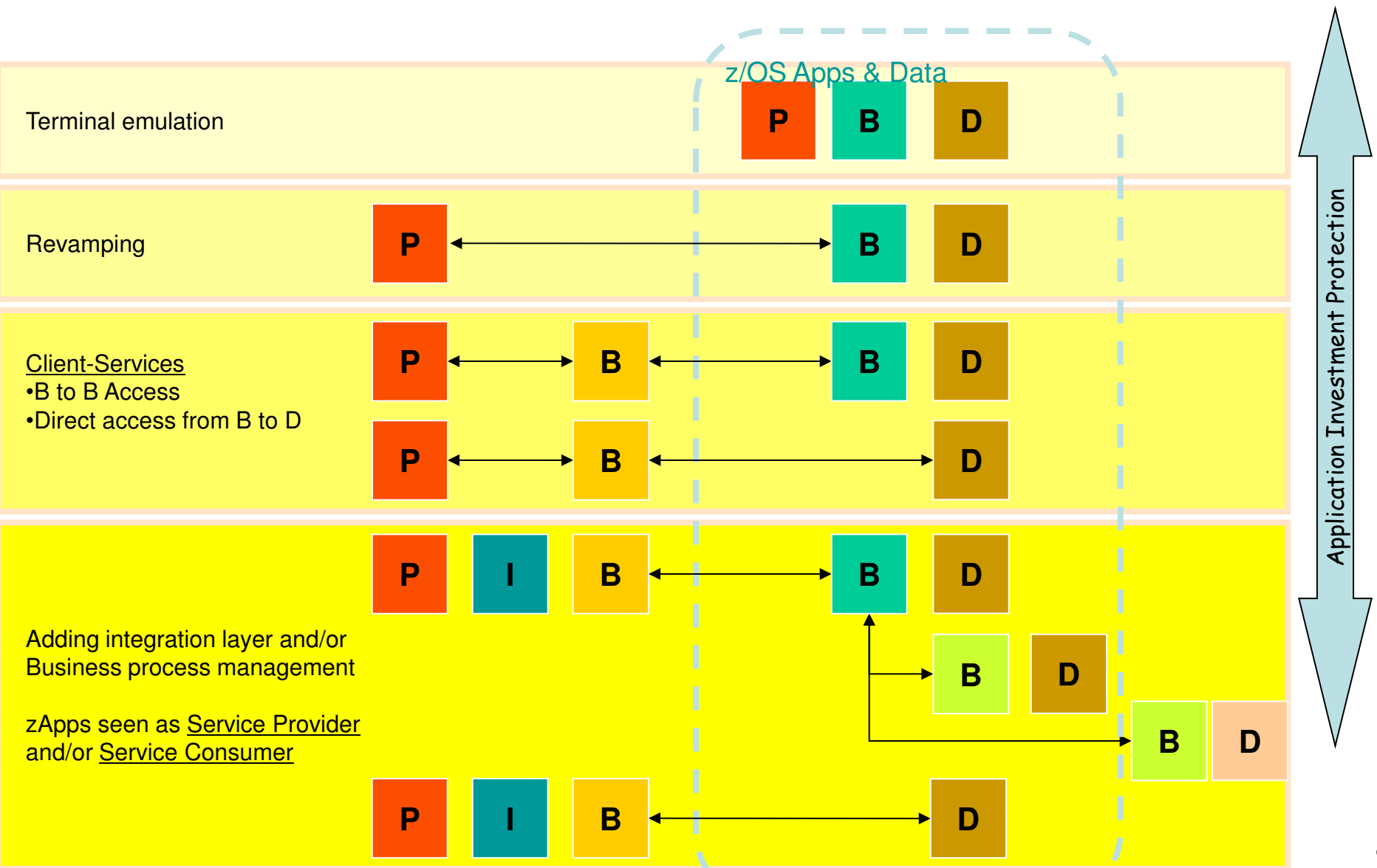
Enterprise Service Bus



Events



# Maturity Level based on Separation of Application Layers





# Evolution Paths for Extension, Transformation and Growth

## ■ Application runtime modernization

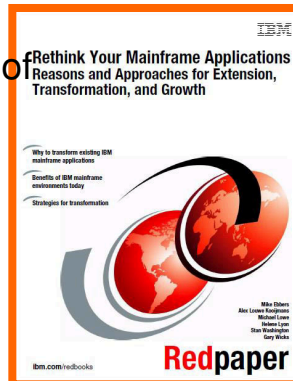
- Reinforce the value of centralized Transaction + Batch + Database processing
- Run regular health checks
- Optimize the batch window
- Take benefit of a highly available infrastructure
- Check latest features of middleware
- Use of the latest compilers

## ■ Application development & test foundation modernization

- Use of a single Integrated Development Environment (IDE)
- Take benefit of an end-to-end view of development
- Improve testing environment

From Redpaper:

<http://www.redbooks.ibm.com/abstracts/redp4938.html?Open>



## ■ Business application transformation

- Call out to services
  - Optimized path with WAS on z/OS & WOLA
- Integrate external business rules
- Access real-time scoring capabilities
- Incorporate direct access to master data management services
- Publish business events
- Integrate local CPLEX mathematical algorithms
- ...

## ■ End to end application infrastructure evolution

- Integrate CICS and IMS programs as services in a service oriented architecture
- Augment the integration architecture with business process management
- Expand the multi-channel architecture and integrate the mobile channel
- Access mainframe data directly – the Trusted source of information

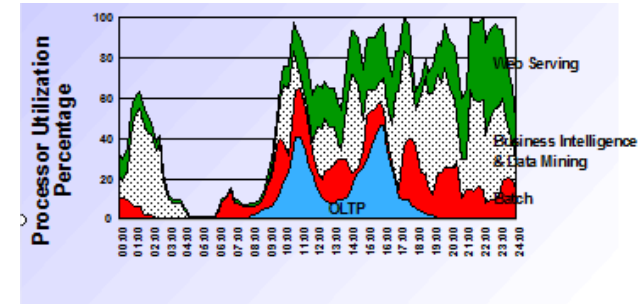
# The “Ideal” Runtime IT Environment ... seems to be synonym of z

- **Controlled Cost**
  - Including facilities, hardware, software, people
  - Improving effective ROI of hosted applications
- **IT management processes**
  - Implementing IT management controls able to be monitored at an IT level and at business level simultaneously
- **Compliance & Security**
  - Implementing levels of security for servers and applications that can enforce compliance to evolving standards
- **Agility**
  - Allowing easy and secure changes in order to be responsive to business needs
    - In case of a surge of traffic
    - In case of new apps implementation
- **Continuous availability**
  - Interruption-free service for the end user

# Build the most efficient Runtime Environment

## Reduced MIPS consumption

- **Reminder: The cost of running incremental workload on the mainframe decreases as the total workload grows.**
- **Understand LPAR organization & consumption**
  - Important for sub-capacity pricing
  - Solution for soft capping
- **Implement advanced workload management capabilities**
  - Need to understand workload criticality
- **Study the Batch window**
  - Critical application batches versus non critical
  - Utility batch
    - Image copy, ...
- **Tune the critical Middleware Layers (DB2, CICS, IMS TM/DB)**
  - Improvement with every new release
- **Reduce cost for new workload**
  - z/OS as High Performance Java container
    - In WAS, DB2, CICS, IMS
    - For transactional and batch workload
    - Interoperability between Java & COBOL/ PLI
  - DB2 for z/OS as centralized data server with zIIP offload
    - Single version of truth for relational data hosted on z/OS
    - Reduction of ETL processes



**Mixed Workload**

**High CPU utilization**

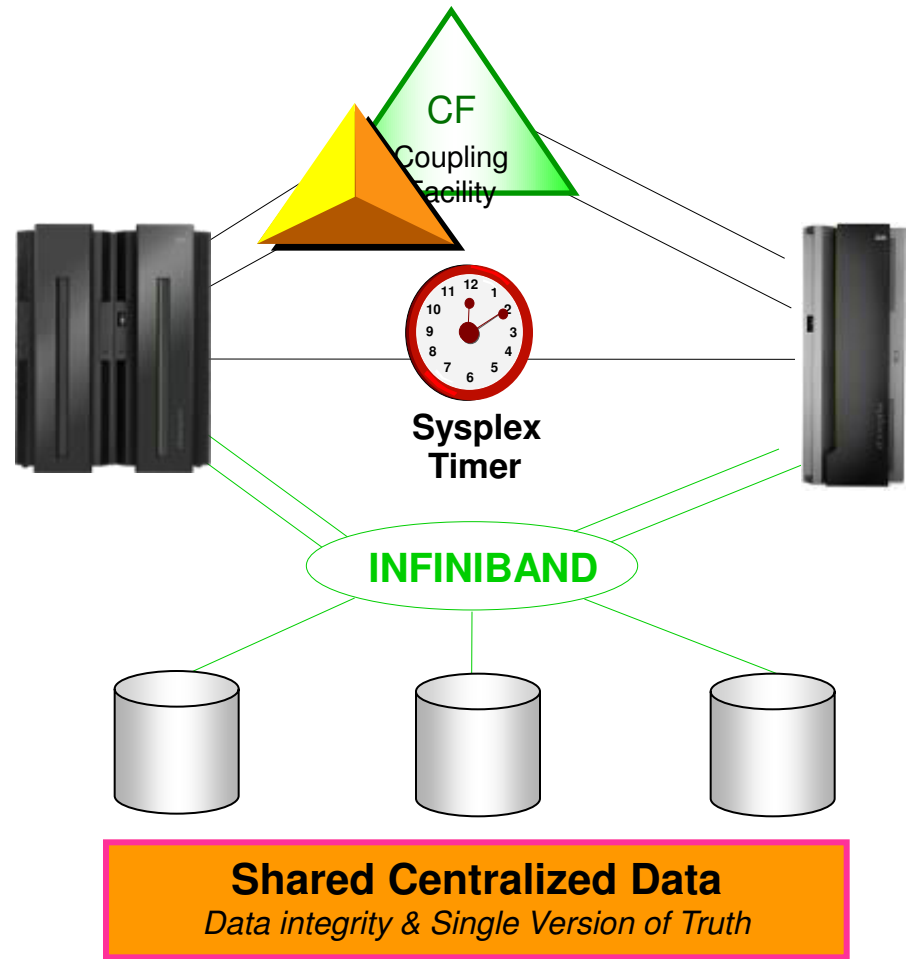
**Honoring workload  
business priorities**

**High Security**

# Build the most efficient Runtime Environment

## High Availability & Scalability with Parallel Sysplex – Nobody else Has It!!

- **Continuous availability, highly scalable growth**
- **Hardware**
  - Redundant coupling facilities providing processing and shared storage
  - Common timing facility
  - Dedicated high speed interconnections
  - Fiber switch provides access to centralized and shared data
- **Micro-code + Operating System**
- **Mainframe Middleware Exploitation**
  - DB2, MQ, CICS, IMS, VSAM, RACF, etc
- **Workload Management**
  - Workload management within a z/OS instance with WLM
  - Workload management across LPARs with IRD

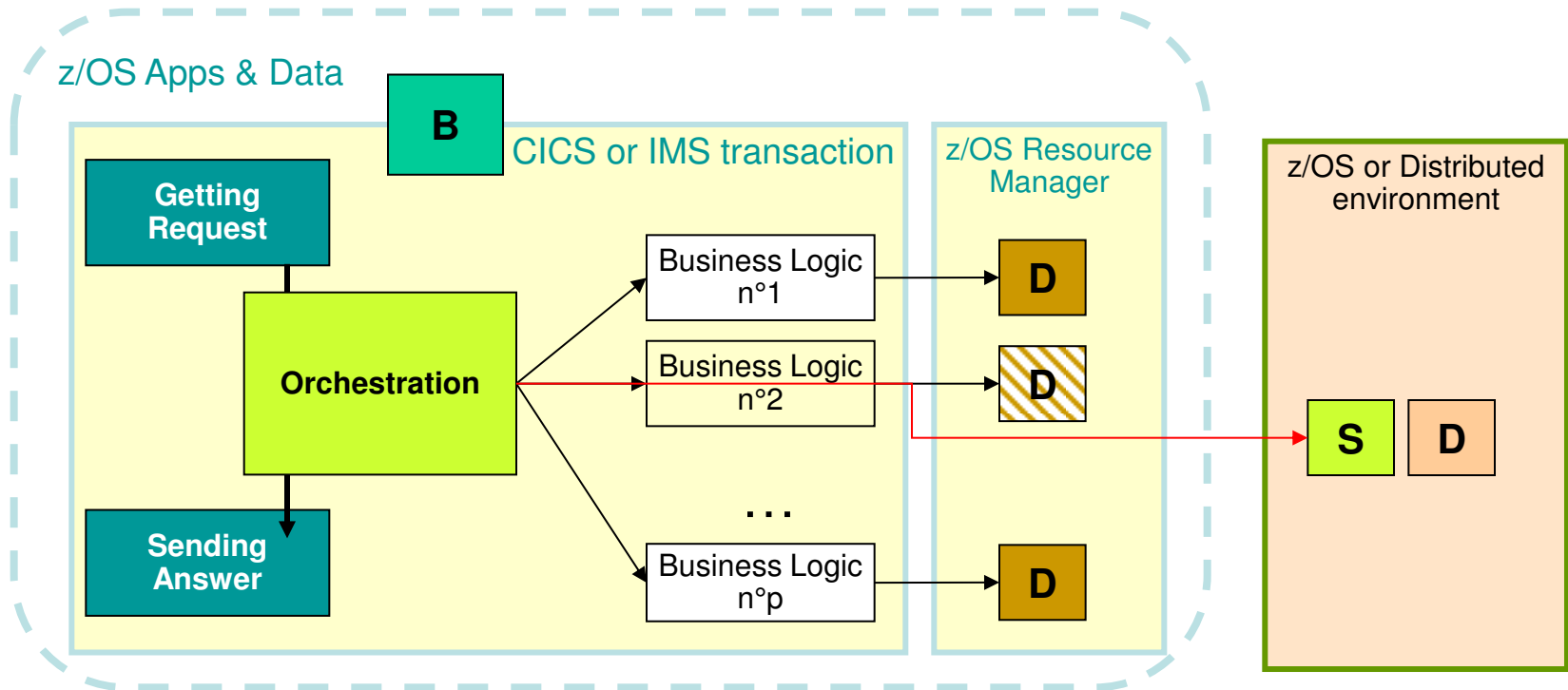




# Talking about Cost: Understand The Complete Picture



# Positioning z/Apps as Service Requester

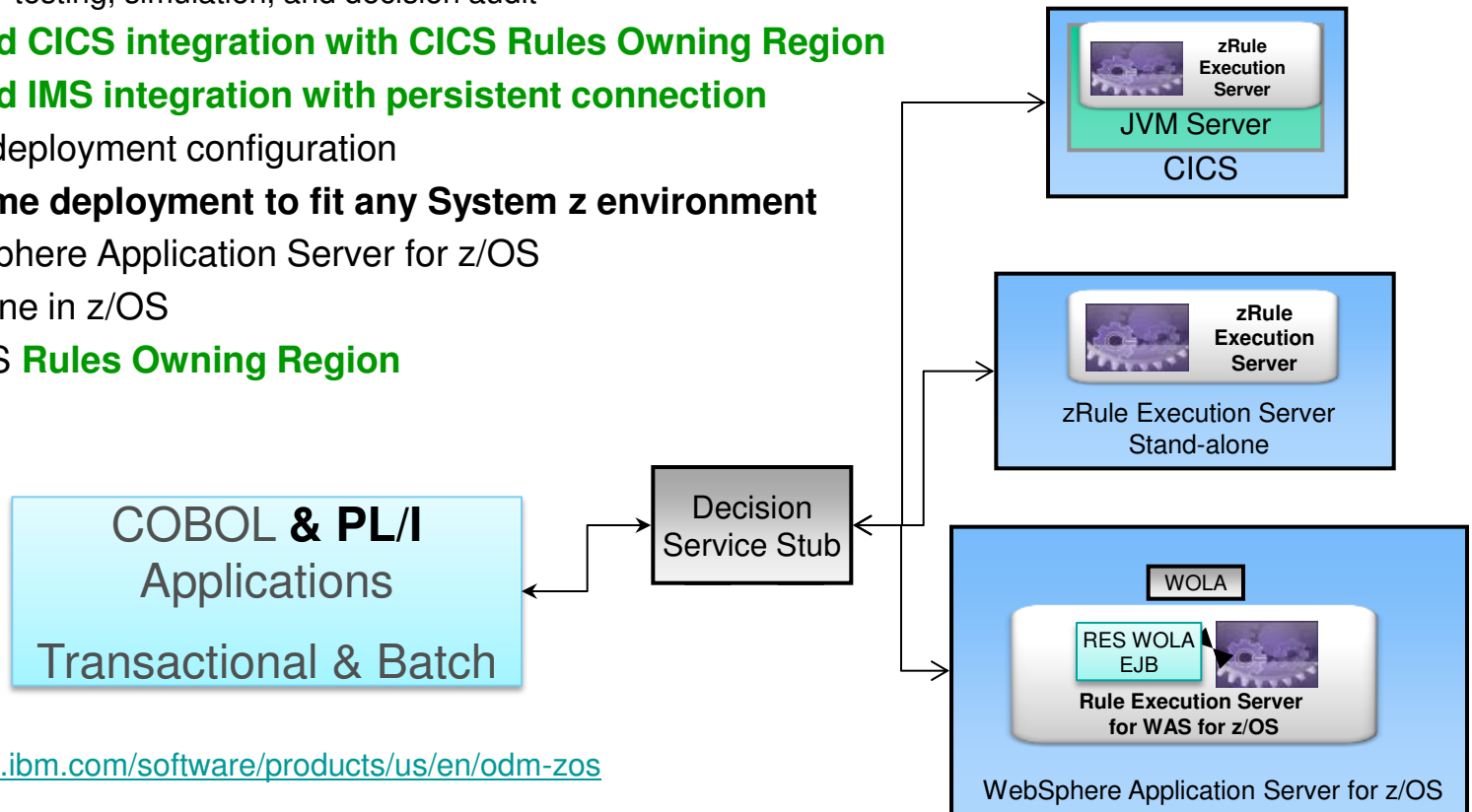


- **Tools that can help you understand existing z/apps**

- Rational Asset Analyzer  
Tool that delivers up-to-date knowledge of application components and quickly provides a comprehensive impact analysis in perspective of application modernization.
- CICS Interdependency Analyzer  
Runtime tool to identify the sets of resources that are used by individual CICS transactions and to collect and analyze data about transaction affinities.
- Tivoli Asset Discovery for z/OS  
Runtime tool to discover running assets.

## Modernize and Manage Your zEnterprise Decision Logic

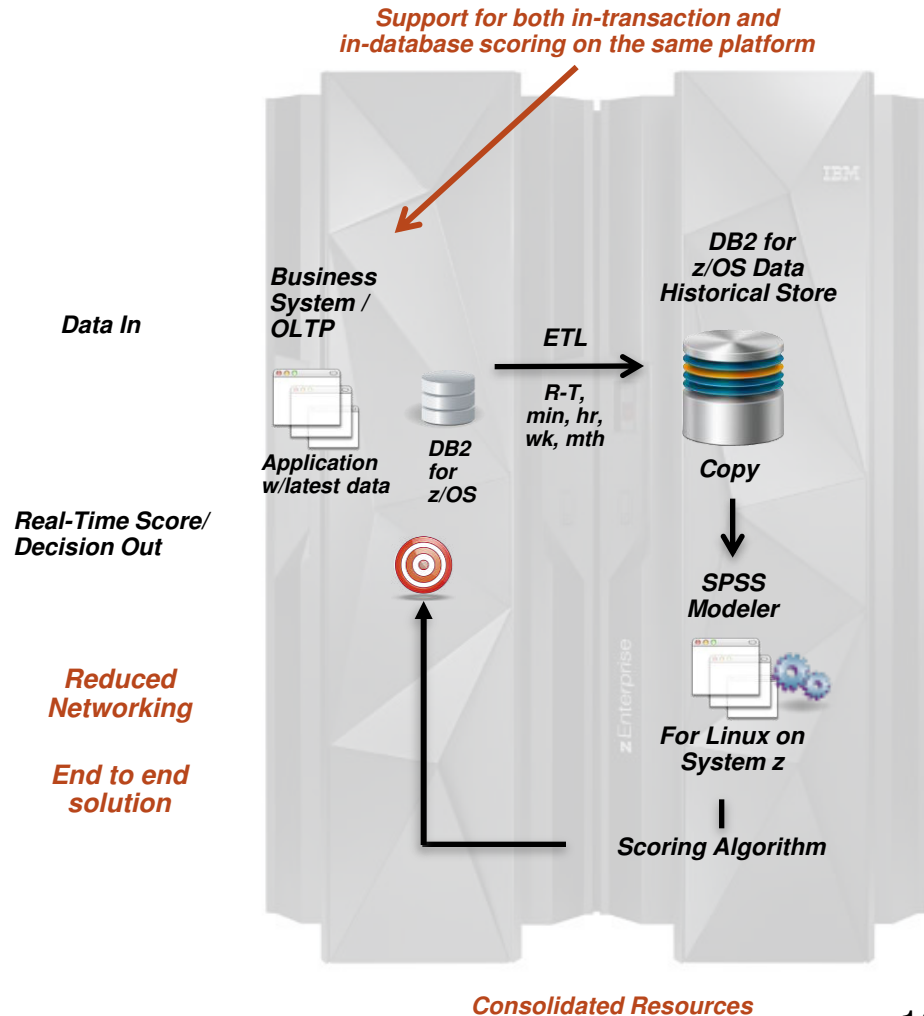
- **New IBM Operational Decision Manager for z/OS 8.5**
  - New **PL/I Language support**
  - Decision Engine now **available on WAS for z/OS**
    - For testing, simulation, and decision audit
  - **Improved CICS integration with CICS Rules Owning Region**
  - **Improved IMS integration with persistent connection**
  - Simpler deployment configuration
- **Flexible runtime deployment to fit any System z environment**
  - In WebSphere Application Server for z/OS
  - Standalone in z/OS
  - In a CICS **Rules Owning Region**



<http://www-03.ibm.com/software/products/us/en/odm-zos>

# zApps & Real-Time Scoring

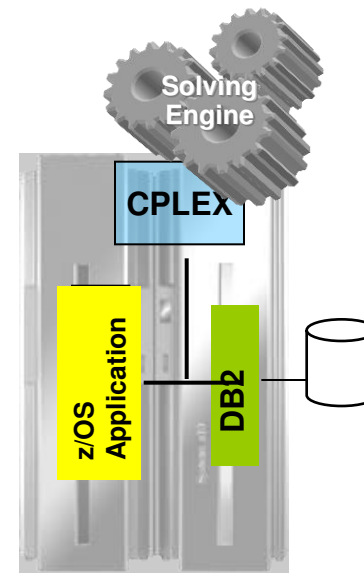
- **Moving the computation to the Operational Transactional data**
  - z/Apps can call scoring services deployed in the scoring engine
  - z/Apps can invoke SPSS Modeler scoring algorithms directly into IBM DB2 for z/OS
    - Scores can be invoked by SQL statements and run in user defined functions (UDFs) in DB2 for z/OS.
    - Rather than extracting data from DB2 and sending it to a separate scoring engine on System z or another platform, it can be scored within the scope of a transaction accessing the DB2 primary data
    - Lab measurements demonstrate the ability to drive 10,000 scoring transactions per second with 15 millisecond response times.
- **The solution enables the real-time scoring of new transactional data as it is created, resulting in decision-making with greater accuracy and efficiency, while ensuring that you can continue to deliver upon your service level agreements.**





# zApps & Optimization Solutions

- **Optimization helps businesses**
  - Create the best possible plans
  - Explore alternatives and understand trade-off - What-If Analysis
  - Respond to changes in business operations
- **CPLEX, the standard in optimization software, now available on z/OS!!**
  - Enable new mathematical optimization capabilities for mainframe applications
  - Capable of using several CPU for parallel calculations
  - Include interfaces in the C and C++ programming languages.
- **Value for IT**
  - Maintain the security and reliability of data for optimization applications within the mainframe environment.
  - Reduce IT and software maintenance costs through simplified architecture.
  - Gain greater end-to-end performance



How to best allocate aircrafts and crews?



inventory cost vs. customer satisfaction?



What to build, where and when?



Cost vs. carbon emission?

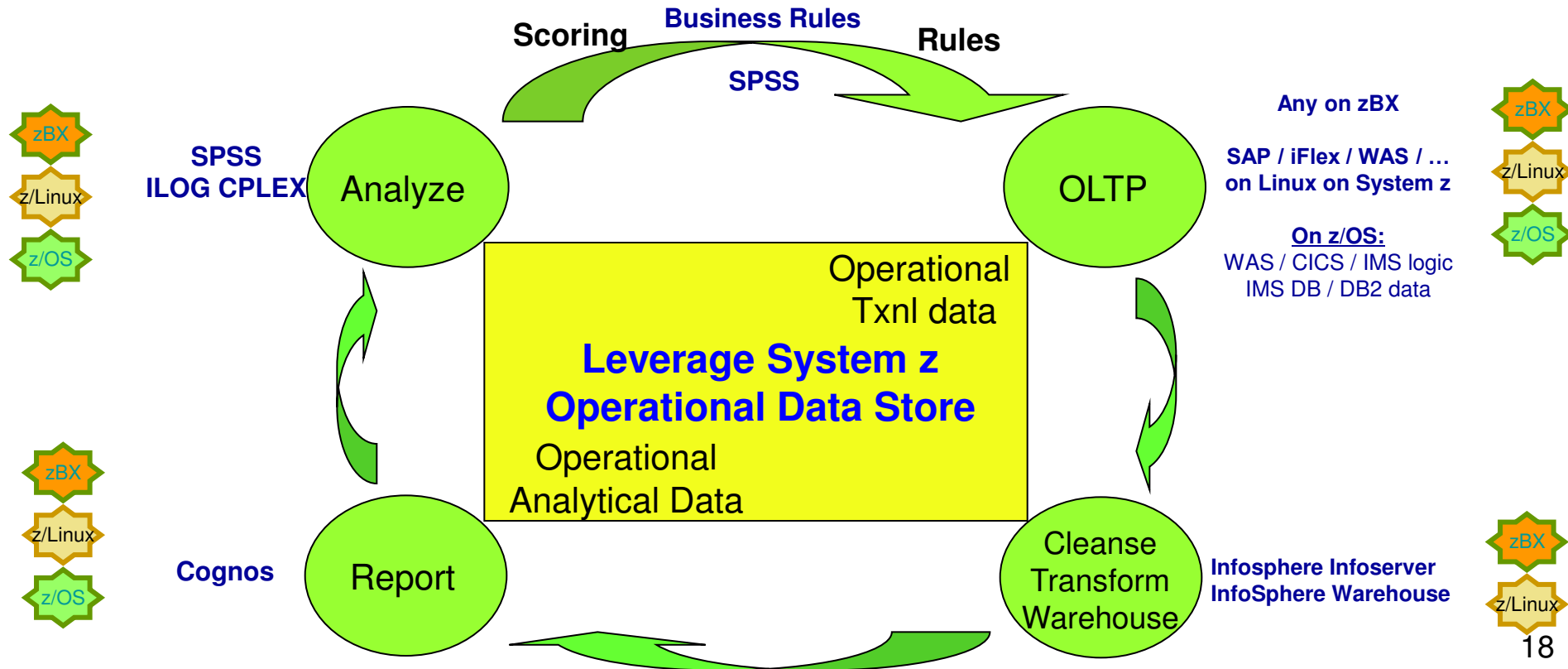


Risk vs. potential reward?

# System z as Business Analytics Hub

Differentiate DB2 for z/OS + System z HW to integrate analytics with real time OLTP  
 Superior end/end analytics life cycle integration

**Better business response,  
 Reduced data movement, reduced complexity, reduced configuration resources,  
 More accurate, more secure, more available**



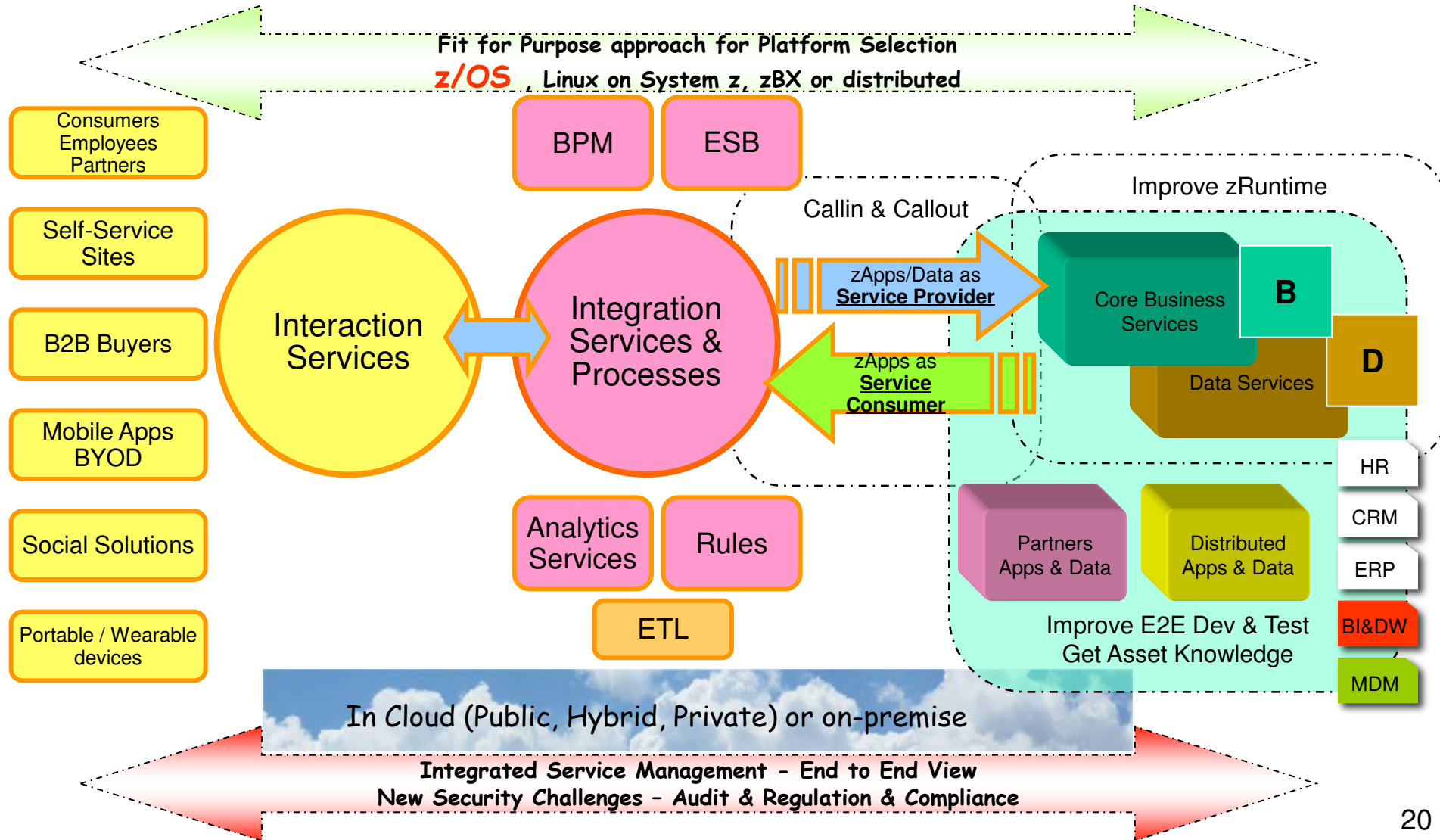
# OLTP vs. Analytics – Bank Examples

OLTP - “Transactional”	Transactional Analytics (Operational BA)	Deep Analytics
<b>Withdrawal from a bank account using the Internet</b>	<b>Approve request to increase credit line based on credit history and customer profile</b>	<b>Regular reporting to central bank – sum of transactions by account</b>
<b>Run Batch payments processing</b>	<b>Review Branch based performance per territory</b>	<b>Compare branch performance over time against other similar branches</b>
<b>Perform commercial inter-bank transfer</b>	<b>Provide annual or historic list of transactions</b>	<b>Marketing campaign to identify key product sales and profitability</b>
<b>Produce a customer statement</b>	<b>Produce statement of accounts for multi-product household</b>	<b>Review preferred channel of choice by customers across certain demography</b>



# Let's get Architects to understand the Power of Legacy!

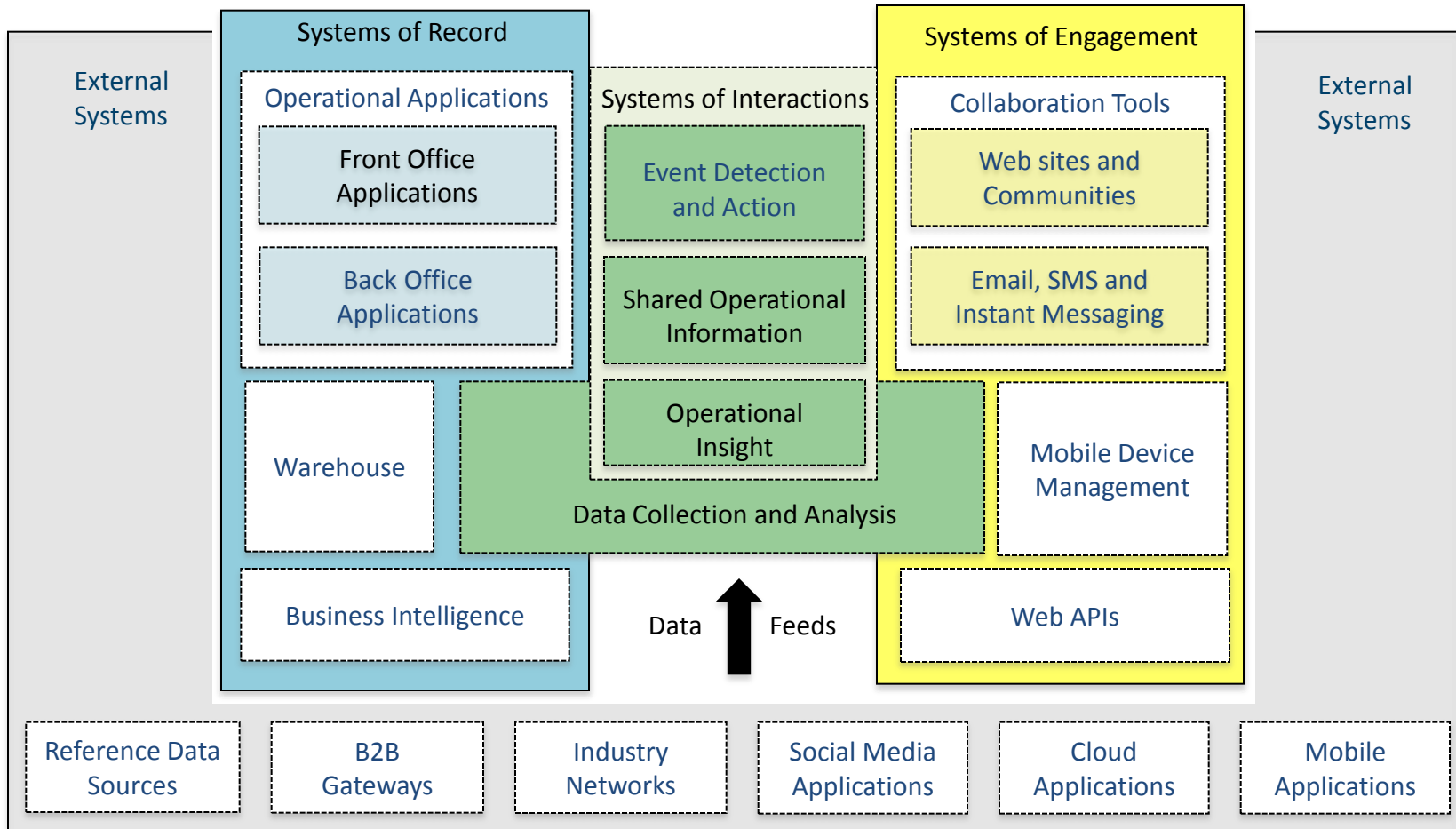
## Let's them Rethink the Impossible!





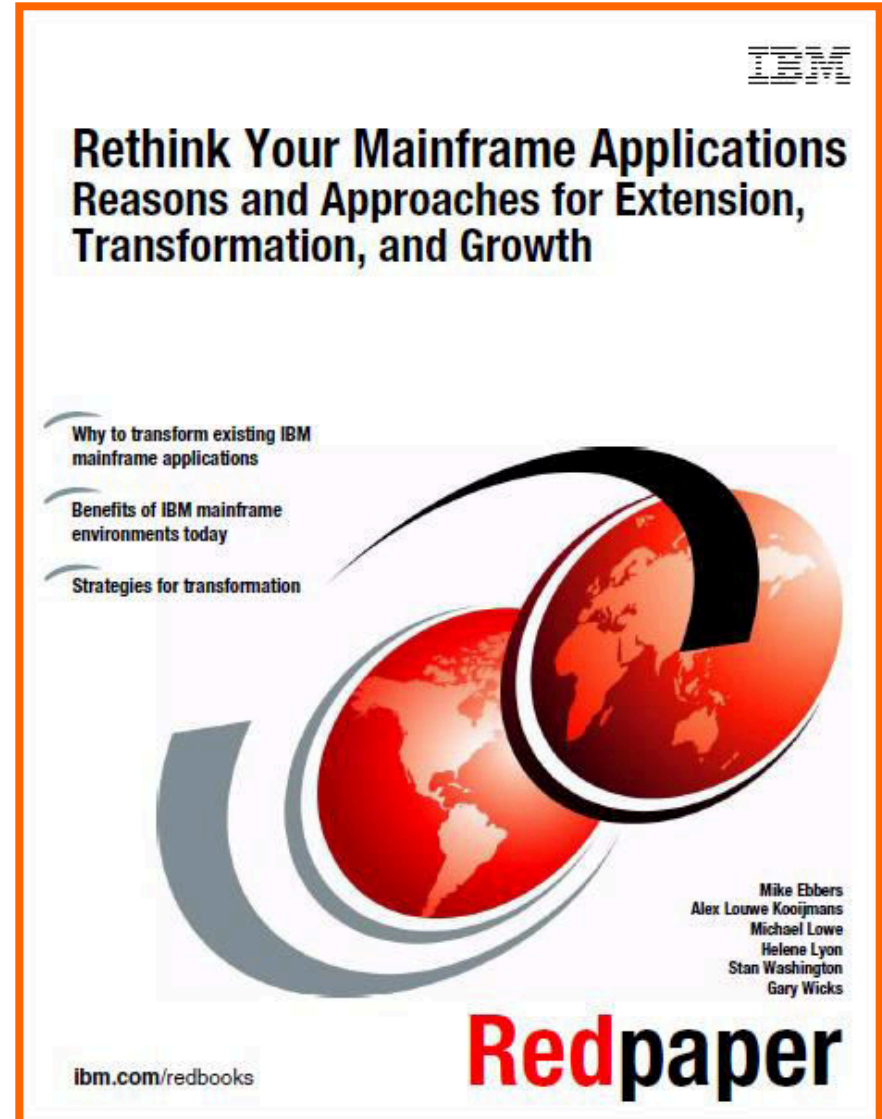
# Let's get Architects to understand where to deploy the 3 "Systems"

## *Systems of Record, Systems of Interaction, Systems of Engagement*



## Ready ...

- **Download the Redpaper**
  - <http://www.redbooks.ibm.com/abstracts/redp4938.html?Open>
- **Get answers to 3 questions ...**
  - Why transform existing IBM mainframe applications?
  - What are the benefits of IBM mainframe environments today?
  - What are some strategies for transformation and extensibility of applications?
- **... organized in 4 chapters**
  - Business and IT trends and how they affect existing applications
  - Attributes of an agile IT architecture
  - The way today's mainframe applications are implemented
  - Evolution paths to achieve more value



# IBM RedGuide – The Role of System z in Transaction Processing and Integrity

- **Transaction Processing: Past, Present, and Future**
  - <http://www.redbooks.ibm.com/abstracts/redp4854.html>
  - Including the role of System z in maintaining transactional integrity
  - Including how organizations are doing to accommodate the explosive growth in transactions
  - Summarizing the capabilities of the major IBM transaction processing products and solutions
- **A key part of this project was to speak with leading organizations who want to share their transaction processing experience and successes**

The image shows the cover of an IBM RedGuide. At the top right is the IBM logo. The title 'Transaction Processing: Past, Present, and Future' is centered. Below the title is a grid of images: a person with a sign, a person sitting at a desk, and a person standing by a window. The 'Redguides for Business Leaders' logo is on the right. A list of authors is provided: Alex Louwe Kooijmans, Elsie Ramos, Niek De Greef, Dominique Delhumeau, Donna Eng Dillenberger, Hilton Potter, and Nigel Williams. A bulleted list of topics is at the bottom: Transaction processing in today's business environment, Business challenges and technology trends, and Role of the IBM mainframe. The Redbooks logo is at the bottom right.

**IBM**

## Transaction Processing: Past, Present, and Future

**Redguides**  
for Business Leaders

Alex Louwe Kooijmans  
Elsie Ramos  
Niek De Greef  
Dominique Delhumeau  
Donna Eng Dillenberger  
Hilton Potter  
Nigel Williams

- Transaction processing in today's business environment
- Business challenges and technology trends
- Role of the IBM mainframe

**Redbooks**