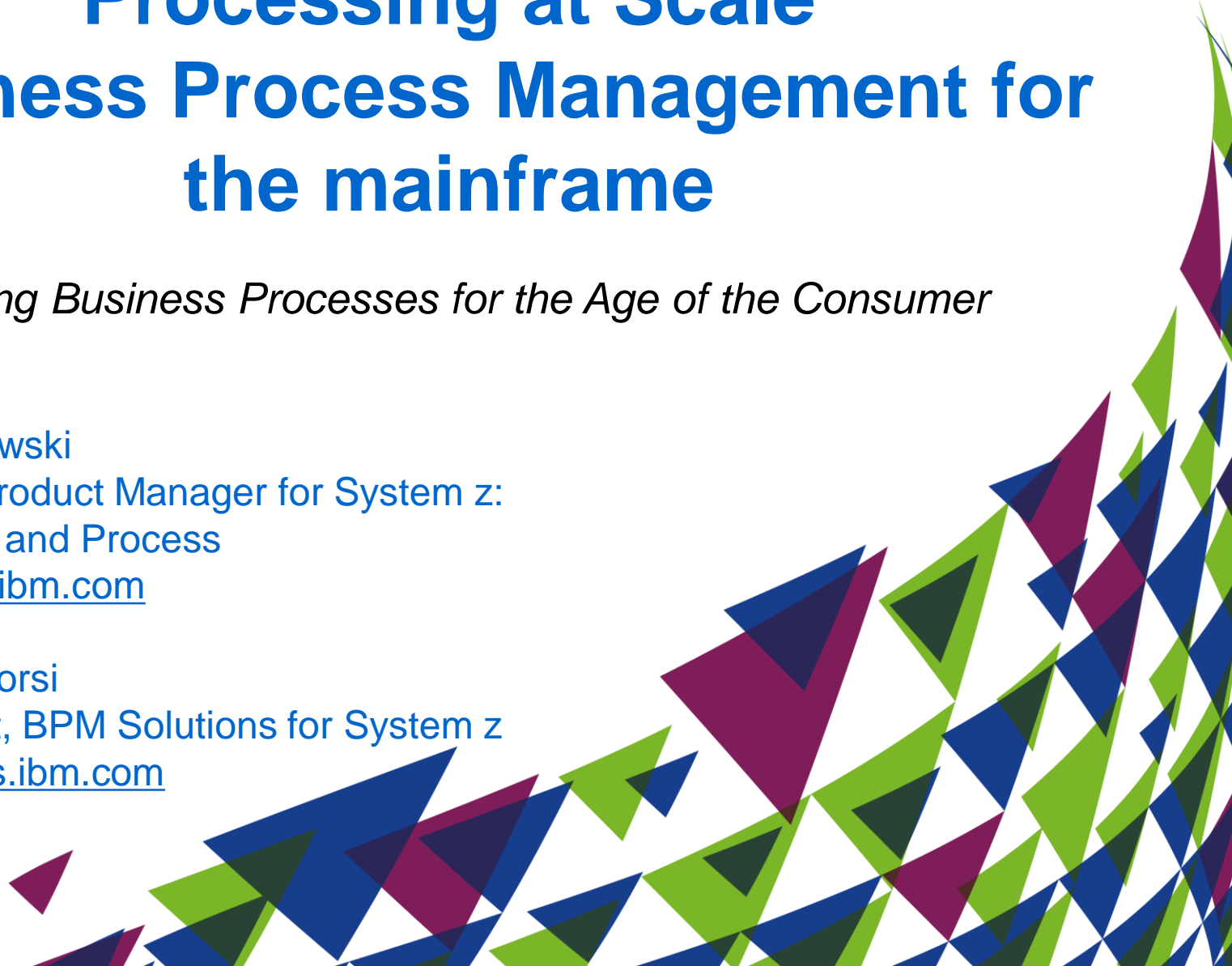# Driving Straight-Through Processing at Scale
Business Process Management for the mainframe

Reinventing Business Processes for the Age of the Consumer

Richard Szulewski
WebSphere Product Manager for System z:
Rules, Events and Process
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David Bonaccorsi
Lead Architect, BPM Solutions for System z
davebono@us.ibm.com

What do you need from your processes in the age of the customer?

Processes must be:

Instant

At Internet speed

47% of online bank account opening applicants don't successfully complete the process and fund their accounts

Seamless

Interconnected & ubiquitous

In the US, mobile banking jumped to 32% of customers in 2012 up from 21% in 2011

Insightful

Targeted and relevant

47% say it frustrates them when companies don't use the information they have to make interactions and offers more relevant

Reinvent Processes for the Age of the Consumer

Centralized Visibility & Control

IBM Business Process Manager

Instant

Mobile aware and real-time collaboration enable immediate actions that drive better business outcomes

Seamless

Tight integration to Systems of Record enables enterprise-wide process improvement

Insightful:

Robust analytics provide comprehensive insights into process activities
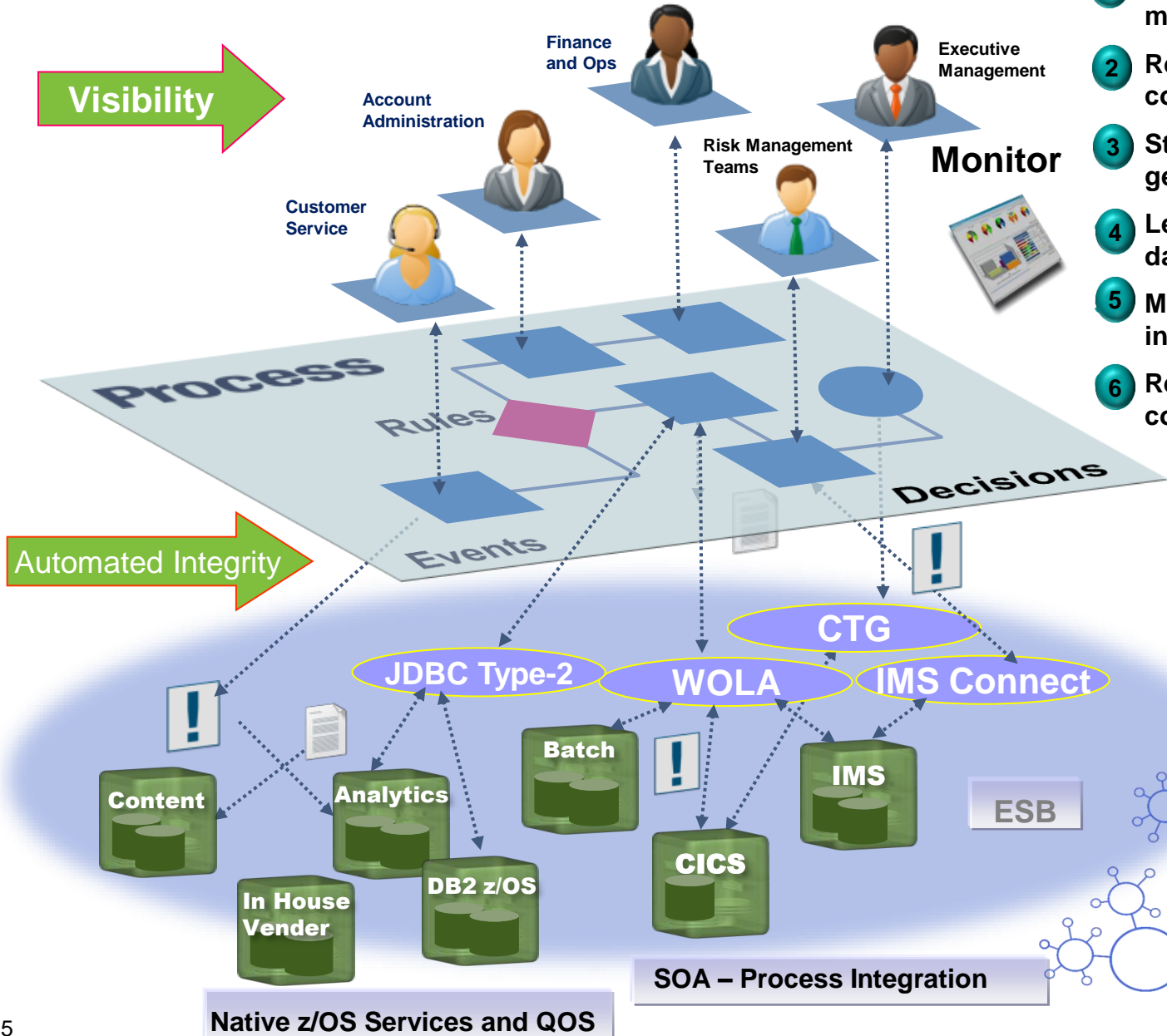
3

"Business As Usual" Begs for Operational Improvement
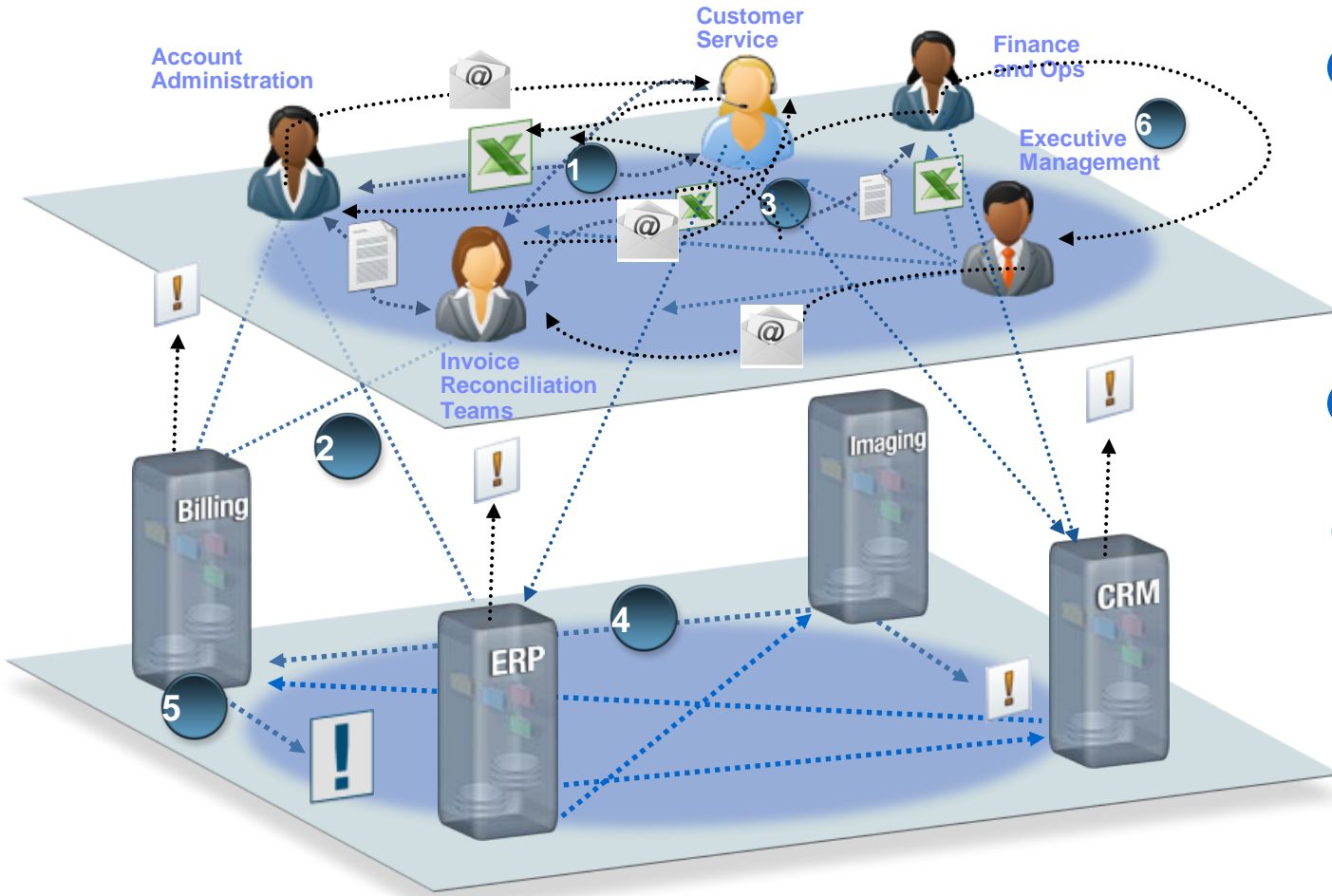
1. Unstructured Tasks and Communication (ex Paper or email)

2. Inefficient Working Environment Spans Systems

3. Inconsistent Prioritization

4. Incomplete or Inaccurate Data Flow Between Systems

5. Lack of Control Over System and Business Events (Exceptions)

6. Poor Visibility Into Process Performance

Bringing Order to the Chaos for z/OS

Visibility

Automated Integrity

Customer Service

Account Administration

Finance and Ops

Risk Management Teams

Executive Management

Monitor

Process

Rules

Decisions

Events

CTG

JDBC Type-2

WOLA

IMS Connect

Batch

IMS

Content

Analytics

ESB

z/OS

In House Vender

DB2 z/OS

CICS

SOA – Process Integration

Native z/OS Services and QOS

1. **Automate workflow & decision making**
2. **Reduce errors and improve consistency**
3. **Standardize resolution across geographies**
4. **Leverage existing systems and data**
5. **Monitor for business events and initiate actions**
6. **Real-time visibility and process control**

Customer Benefits:
- ✓Huge reduction in manual work
- ✓Consistent work prioritization
- ✓Easier to manage the business
- ✓Consistent work handling
- ✓Faster, more consistent Issue resolution

IBM Products for Business Process & Decision Management

Blueworks Live

Business Process Manager

Process Center

Process Server

Management of all process components

Operational Decision Management

Decision Center

Decision Server

Management of business rules & events

Business Monitor
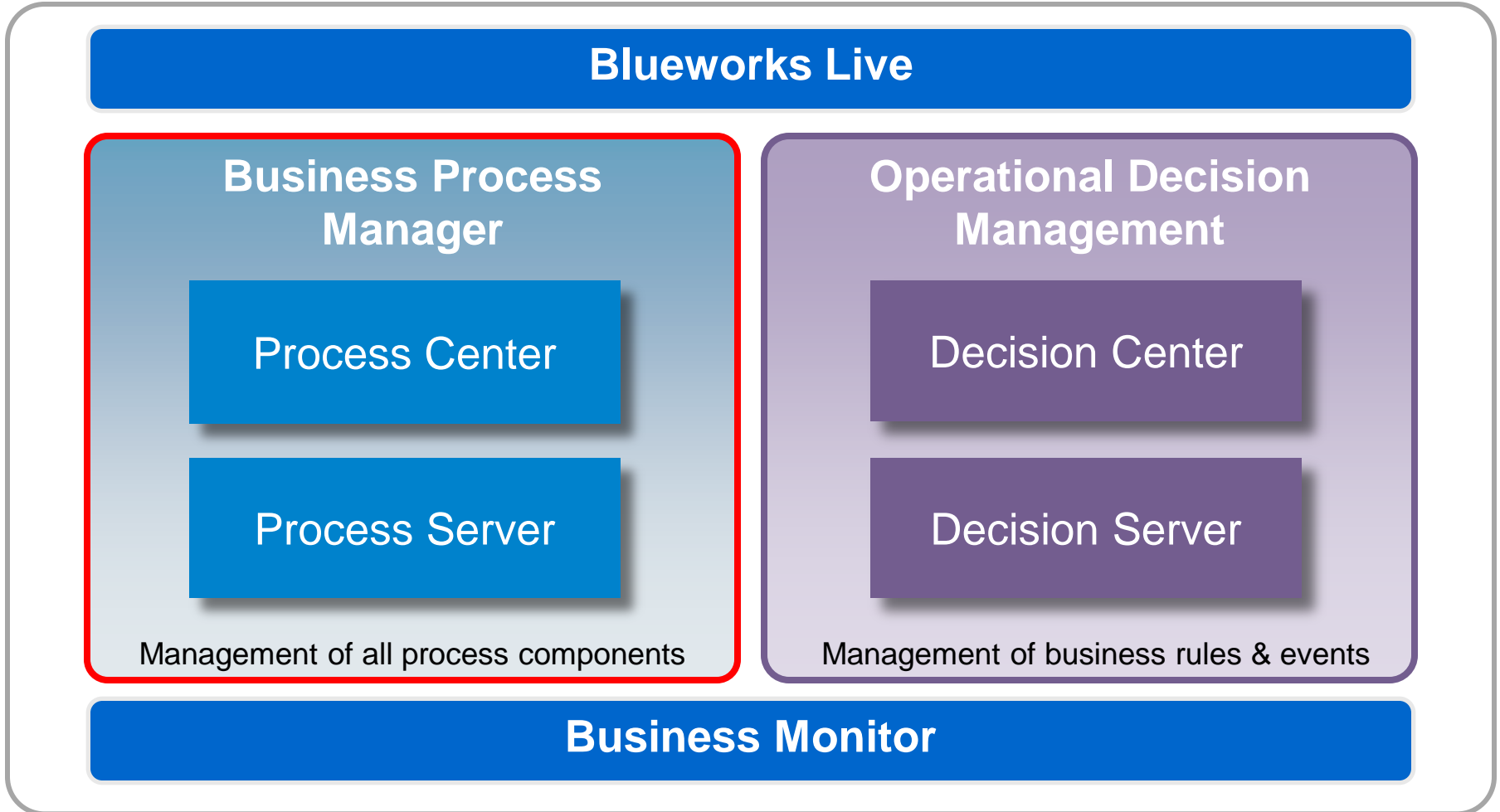
Work together to deliver effective solutions for business operation improvement

IBM Business Process Manager v8.5
Visibility and control of business processes

Client Value

A powerfully simple platform that provides visibility and control to optimize business processes and empower business users to be agents of change

What's New?

Mobile

Infuse mobile insights into business processes using Worklight and IBM BPM mobile tookit to extend process applications to mobile

Cloud

Designed to accelerate BPM adoption, IBM Business Process Manager v8.5 now delivered as a cloud offering

Performance Dashboard

Empower business users to collaborate and act on observed insights with next-generation process performance dashboards

New and enhanced versions

IBM Business Process Manager v8.5

Cloud: IBM Business Process Manager on Cloud

PureApplication System: IBM Business Process Manager Application Pattern v8.5

z/OS: IBM Business Process Manager for z/OS v8.5

Automate and Manage Mission-Critical Applications IBM ® Business Process Manager for z/OS V8.5

- Supports **automation** of business and system processes across z/OS core business applications

- **Built-in dashboards** to help improve business process outcomes and enable the creation of custom dashboards

- Delivers high scalability and transactional integrity for **automated straight through processing** supporting thousands of transactions per second

- Takes advantage of WebSphere Optimized Local Adapter (WOLA) technology for **high-speed integration** with co-located COBOL, PL/I, and assembler applications in CICS, IMS, or batch environments at in-memory transfer speeds

What's new

– Simplified installation, configuration, and administration on z/OS to help reduce time and effort

– Performance and process instance details dashboards

– Exploits improved sharing of IBM WebSphere MQ and IBM DB2 resources to support high-availability configurations

– BPM Advanced Only Configuration

Manage core business processes with high integrity and enhanced visibility

Hybrid architectures can better enable optimization

Optimal for Mainframe

Optimal for Distributed

End-to-end application processes

1**. Data Intensive**: large working set and/or high I/O content applications

2. **I/O Bound**: e.g., high I/O content applications

3. **Mixed** multiple, data-intense applications OLTP, MQ

4. **Mixed** ple, CPU-int e applications

5. **Databa** acle DBMS or dyn server

6. **Java Li** ata intensi plications

7. **Java H** CPU intensive java

8. **Ske** e.g., simple and predi action processing

9. **Protoco** g., static HTTP, fir to.

10. **CPU Intensive**: e.g., numerically intensive, etc.

Why z/OS for Business Process Management?

- z/OS Qualities of Service - Availability & Performance
  - Business Processes are business critical applications
  - Need availability: 99.999% of the time!
  - Need to be able to scale: thousands of trans per second
  - Excellent 2PC (Global Transaction Coordination) across

    mission critical SOR's

- Co-Location with key Mainframe Applications
  - Transactional engines including CICS and IMS
  - Batch work streams
  - Business data stores
  - It's Faster and handles more throughput
  - Ideal for Automated Straight through Processes and Service Choreography

- WOLA Adapters – the ultimate Co-Location
  - Zero network latency: Cross memory access Batch and CICS using Assembler, Cobol, PL/I, C or C++ applications

- zAAP Offload capable

  - Workloads can be 70 -80% zAAP eligible

IBM zEC12

Hybrid Business Process Management Topologies

Centralized Deployment
Control Panel & Dashboard

Process Designers

Windows

Integration Designers

Windows

Process Center

Linux on System z

Repository

DB2 V10 for z/OS

Centralized repository
- One-click snapshots of reusable toolkits and apps

Centralized deployment
- One-click deployment and in flight upgrade

Centralized registry
- Single server registry and dashboard of deployments

Process Server
Distributed Test

Process Server
Distributed Q/A

Process Server
Production

Human Services

Process Server on z/OS

Process Hub Production

Windows
Development
Test Cell Instance

. . .

Linux on System z
Q/ A Cell Instance

Linux on System z
Production
Instance
(e.g., LOB Bank)

. . .

z/OS Production
Instance
Enterprise Bank EIS
Integration

Reinventing account opening with Smarter Process

Mobile Financial App

Account is activated and funded before customer logs off

Sign in to mobile financial app to access personal financial data

Mobile

Process for approvals & orchestration

Streamlined process to combine activation and approval routing for recommended products – checking accounts, overdraft protection line of credit and money market

Process

Account opening with

Smarter Process

Instant. Seamless. Insightful.

Social

In-context social recommendations

See social recommendations in financial app for banks. Initiate account opening from app

Rules for credit limits & up-sell

Automatic decision points on credit limits and approval levels. Determine post account opening offers – migrate 401K account transfers?

Rules

Cloud

Secure cloud-based personal data

Financial app populates cloud based personal financial data into bank's account opening steps

Big Data & Analytics

Customer propensity with big data insight

Bank combines customer data with big data benchmarks on external data to determine customer propensity for specific products offered during account opening – i.e. offer money market, credit cards?

Process Hub – Straight Through Processing on z/OS

- ## SOA for Process:
  - Coordinated re-use of existing CICS, IMS and datastore access investment to provide a business process "service"

- ## Composite high value transactions:
  - Orchestrated workflow within a recoverable transaction context

- ## Composite high volume workflows:
  - Highly scalable automated batch workflow with strict SLA requirements

- ## Process Hub on z/OS
  - Integral part of a broader hybrid environment BPM solution

"Fit for Purpose" Process Deployment
  - Offer assured transactional integrity
  - Low latency process orchestration through co-location
  - Combine business decisions with SOA style asset reuse
  - Integrate with business policy (ODM), enterprise messaging backbone (MQ/ISB)
  - Integrates with Sysplex configurations and GPDS recovery solutions
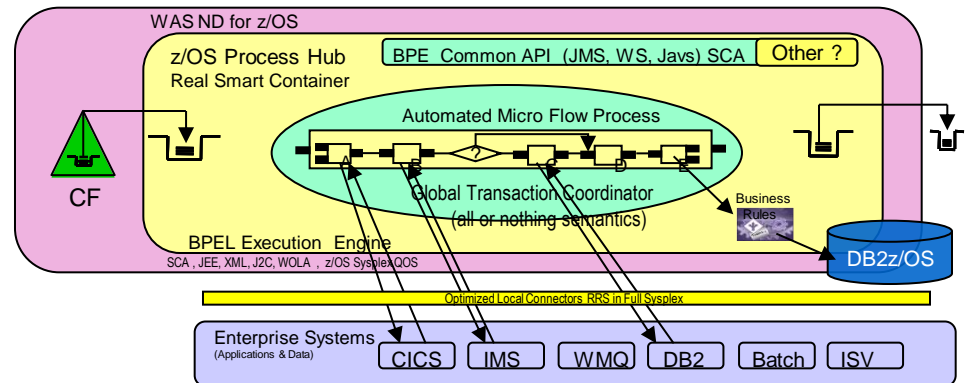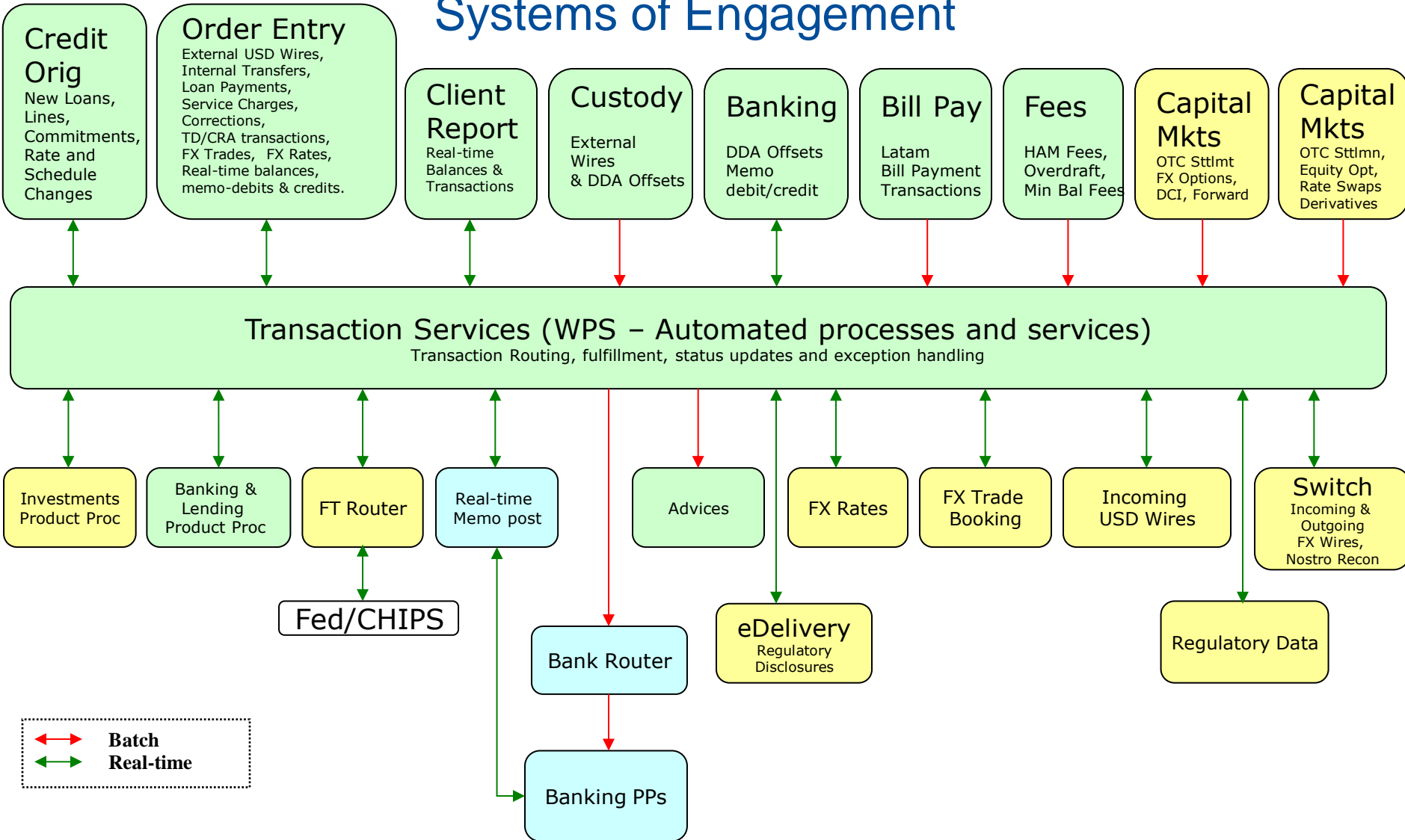

Opportunities across industries – e.g. Banking , Insurance ,Least Cost Routing, Order Validation, Fraud Detection and Transactional Risk Management

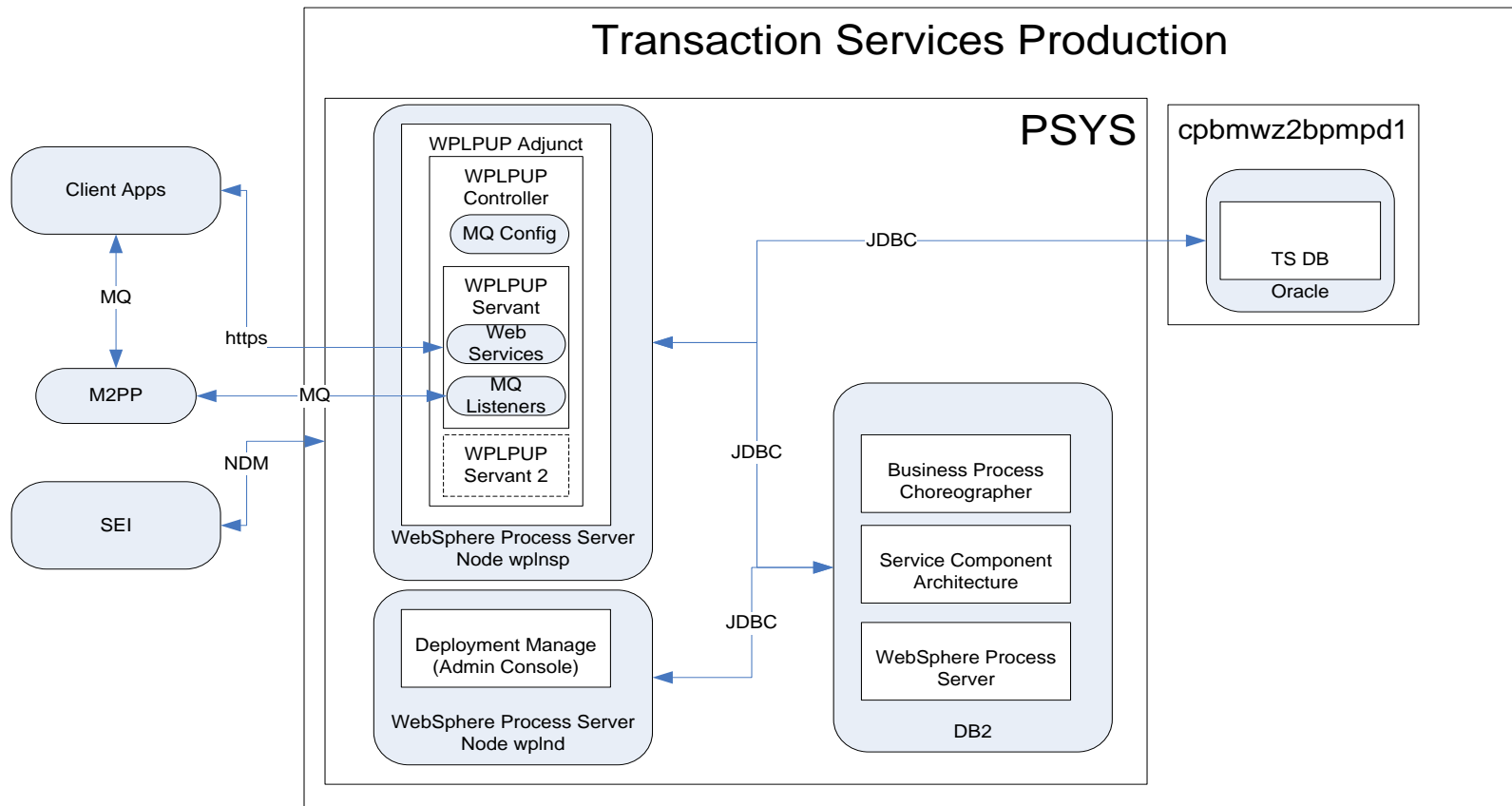# Client Use Case: Transaction Services - Integrating SoEs with SoRs

IBM

Systems of Engagement

Credit Orig
New Loans, Lines, Commitments, Rate and Schedule Changes

Order Entry
External USD Wires, Internal Transfers, Loan Payments, Service Charges, Corrections, TD/CRA transactions, FX Trades, FX Rates, Real-time balances, memo-debits & credits.

Client Report
Real-time Balances & Transactions

Custody
External Wires & DDA Offsets

Banking
DDA Offsets Memo debit/credit

Bill Pay
Latam Bill Payment Transactions

Fees
HAM Fees, Overdraft, Min Bal Fees

Capital Mkts
OTC Sttlmt FX Options, DCI, Forward

Capital Mkts
OTC Sttlmn, Equity Opt, Rate Swaps Derivatives

Transaction Services (WPS – Automated processes and services)
Transaction Routing, fulfillment, status updates and exception handling

Investments Product Proc

Banking & Lending Product Proc

FT Router

Real-time Memo post

Advices

FX Rates

FX Trade Booking

Incoming USD Wires

Switch
Incoming & Outgoing FX Wires, Nostro Recon

Fed/CHIPS

Bank Router

eDelivery
Regulatory Disclosures

Regulatory Data

Banking PPs

Batch (red)
Real-time (green)

Systems of Record

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Client Use Case: Transaction Services

– Built on WebSphere Process Server
– Live since 2009
– Communication via Web Services, Asynchronous MQ, and Synchronous MQ
– All services run in one cluster.
– All calls are microflows

Transaction Services Production

PSYS

cpbmwz2bpmpd1

Client Apps

MQ

M2PP

MQ

NDM

SEI

https

WPLPUP Adjunct

WPLPUP Controller

MQ Config

WPLPUP Servant

Web Services

MQ Listeners

WPLPUP Servant 2

WebSphere Process Server Node wplnsp

Deployment Manage (Admin Console)

WebSphere Process Server Node wplnd

JDBC

TS DB

Oracle

JDBC

JDBC

Business Process Choreographer

Service Component Architecture

WebSphere Process Server

DB2

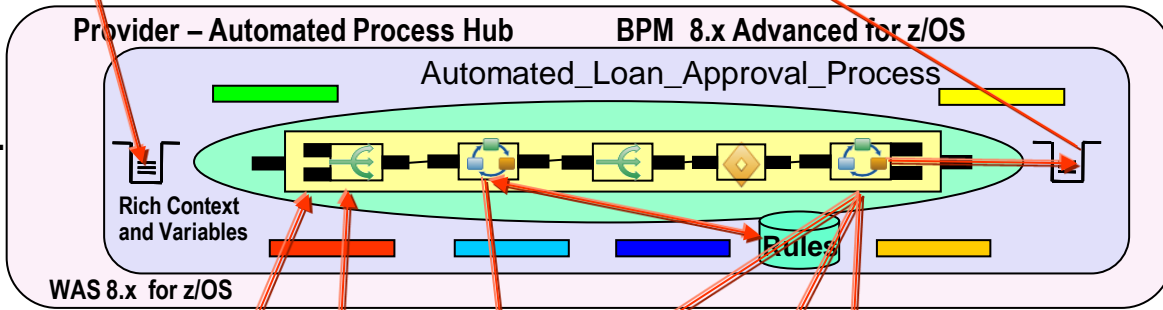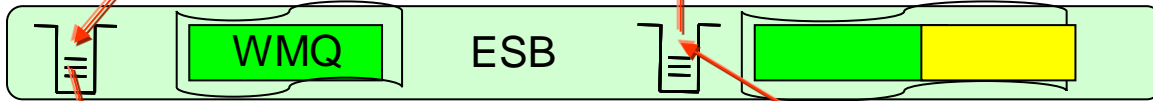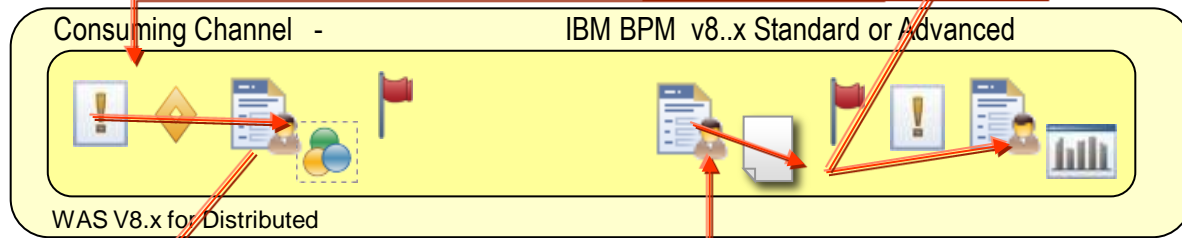# Client Use Case: Still seeing substantial savings

- Additional services were deployed to TS in March 2010
- Utilization was expected to manifest as increased zAAP consumption only
  - Through smarter coding decreased GP MIPS yielded **LESS overall MIPS**
  - Monthly platform cost **remained steady despite increased volumes**
  - With 15% growth monthly, the monthly cost is ~ still flat
- Retirement of legacy services TS converted expensive GP MIPs into zAAP MIPs
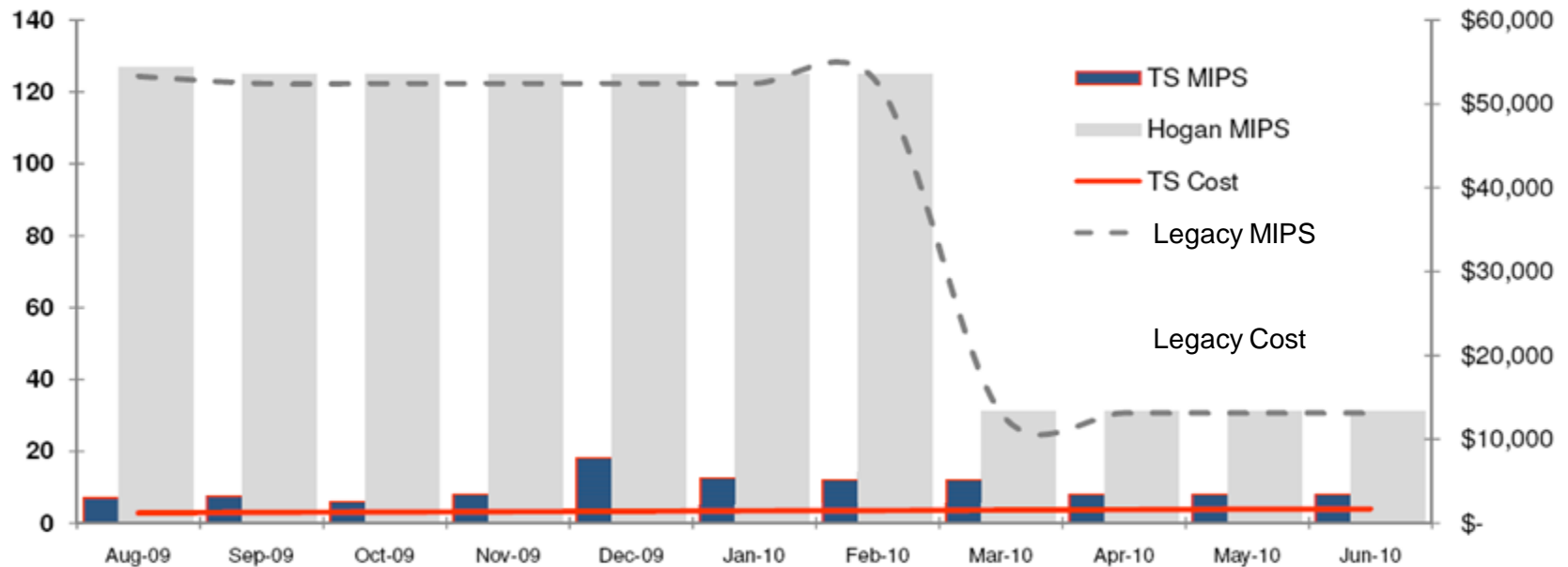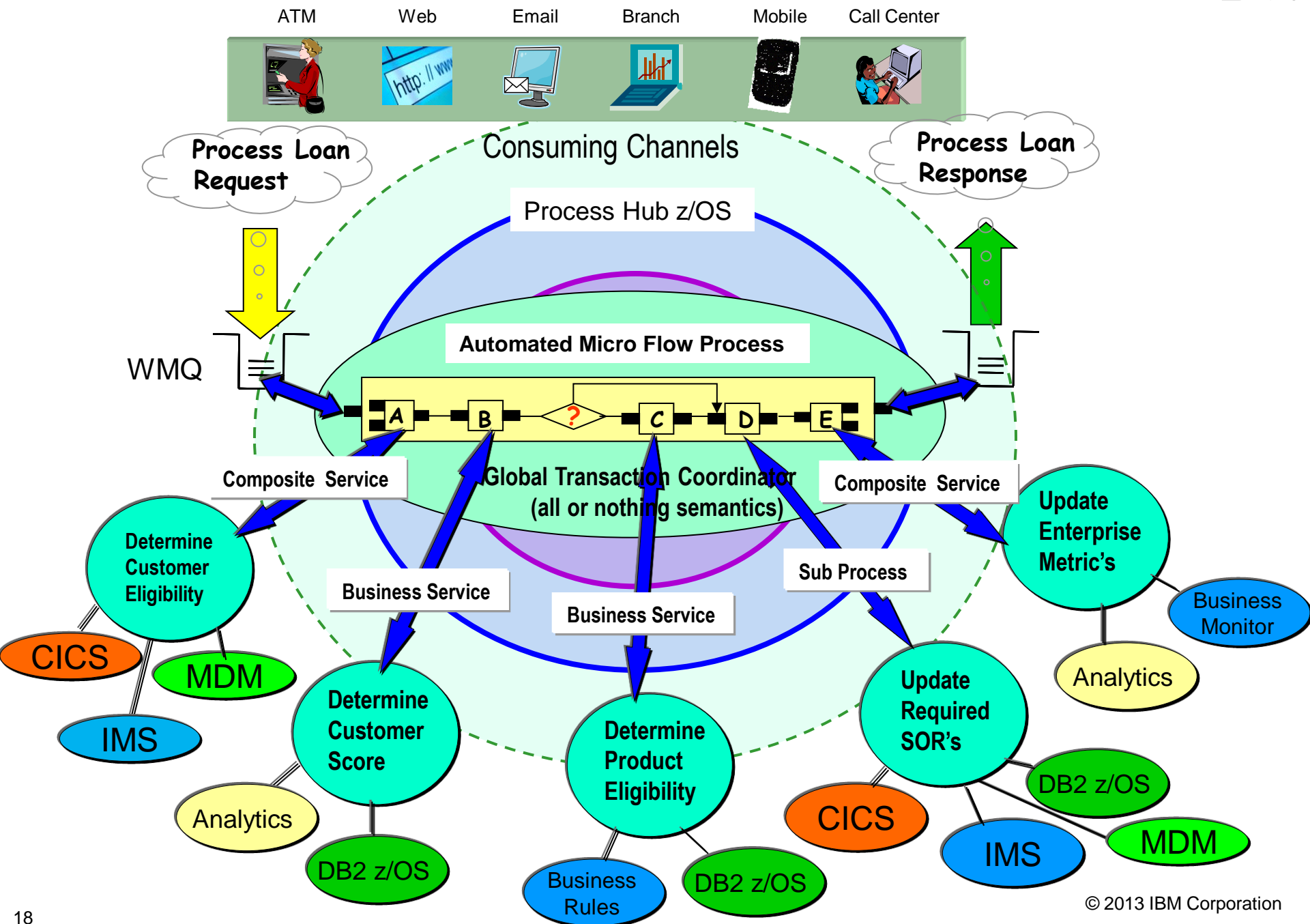
BPM Process Hub Hybrid Loan Scenario

ATM Web Email Branch Mobile Call Center
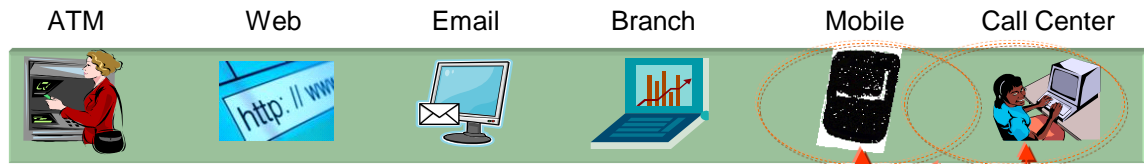
1 **BPM Mobile Channel initiates Loan Application Process**

2 **Loan Expert "collaborates"**

3 **An Automated STP Process**

4 **The STP determines eligibility**

5 **From Business Rule results, Automated STP Sub Process updates all required disparate SOR's**

6 **Expert prepares Loan Fulfillment Documents.**

7 **Business Analysts review real time metrics**

Consuming Channel -   IBM BPM v8..x Standard or Advanced

WAS V8.x for Distributed

WMQ ESB

Provider – Automated Process Hub   BPM 8.x Advanced for z/OS

Automated_Loan_Approval_Process

Rich Context and Variables

Rules

WAS 8.x for z/OS

Optimized Local Connectors RRS in Full Sysplex

CICS IMS Partner Service DB2 MDM Analytics

Enterprise Systems (Applications & Data)

BPM Process Hub Deployment

ATM Web Email Branch Mobile Call Center

Consuming Channels

Process Loan Request

Process Loan Response

Process Hub z/OS

Automated Micro Flow Process

WMQ

A → B → ? → C → D → E

Global Transaction Coordinator (all or nothing semantics)

Composite Service

Composite Service

Business Service

Business Service

Sub Process

Determine Customer Eligibility
- CICS
- MDM
- IMS

Determine Customer Score
- Analytics
- DB2 z/OS

Determine Product Eligibility
- Business Rules
- DB2 z/OS

Update Required SOR's
- CICS
- IMS
- DB2 z/OS
- MDM

Update Enterprise Metric's
- Business Monitor
- Analytics

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BPM Z Process Hub Hybrid Solution

Function Placement

ATM **Web** **Email** **Branch** **Mobile** **Call Center** BPM Client

Business Apps (SOE)

ESB

Process Hub z/OS

WAS z/OS

SOR's z/OS

Notation

Soft Boundary
zLinux, Blade or Cloud

Hard Boundary

Reuse

Agility
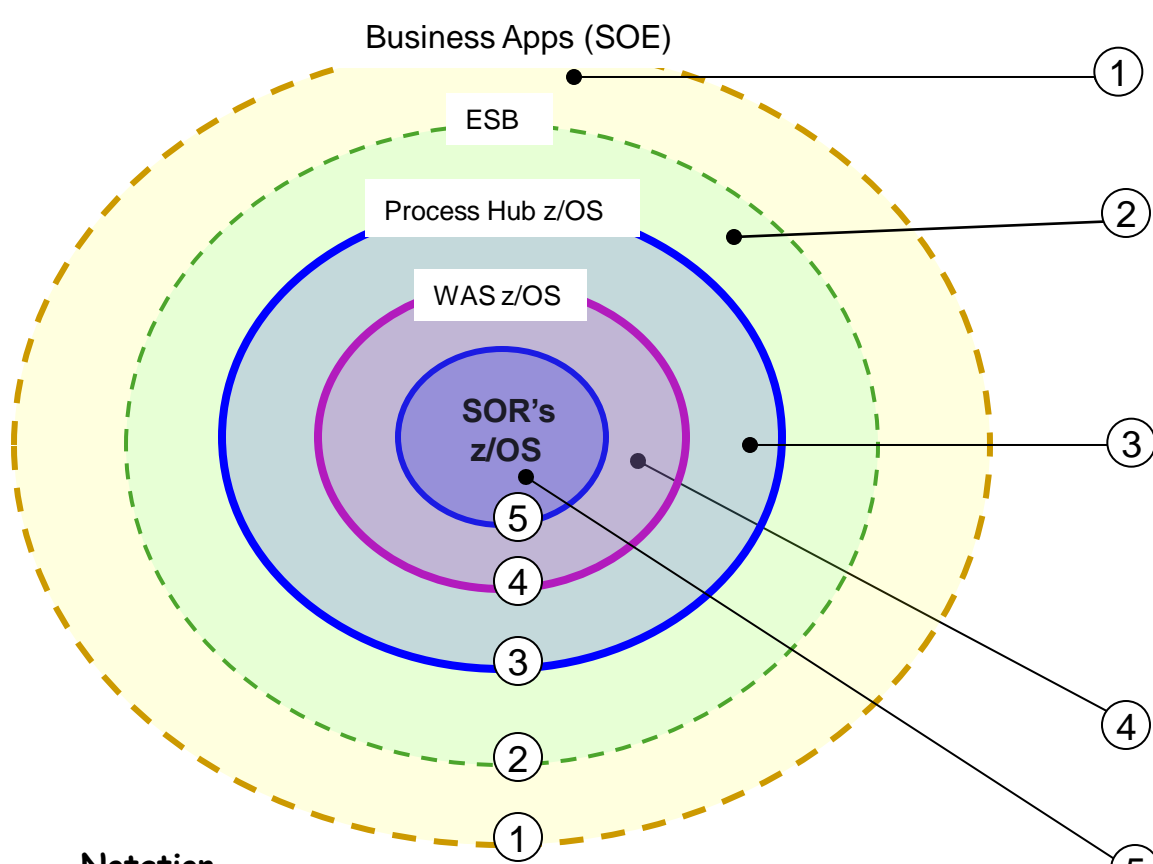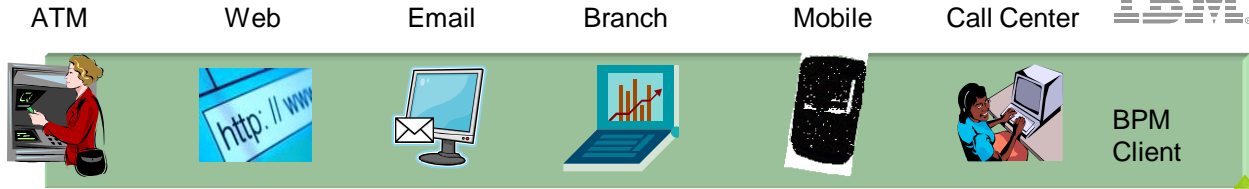
Human Contact and Collaboration
- Social Portals ,Screen Flows, Content,
- Work lists , Business Portals

- Compute Intensive, Search and Analytics
SOA Separation of Concerns
- Message Bus, Service Registry, Cloud Services,
- Brokering and Mediations

Automated Straight through Processes
And Service Choreography
- Composite Services and Global Transactions
- Collocated J2C Optimized Adapters
- Parallel activities and exception handling
- Bulk and Batch Integration

WAS Application Server for z/OS
- JEE Standards, XML , Multi-JVM design
- Optimized Local Connections and QOS

z/OS SOR's - Transactional
- Best in Class OLTP, QOS
- DB2 z/OS Data Sharing , Batch and Bulk

z/OS SOR's Enterprise Systems
(Applications & Data)

| CICS | IMS | WMQ | DB2 | Batch | ISV |

Universal Account Opening Component Interaction Hybrid Solution View

Web 2.0 User Interface

IBM BPM Process Designer And Process Center (BPMN)

Operational Decision Management (ODM)

Front End Business Process

Rule Execution Server

Rule Team Server

JRule Custom Service

Rule Execution Engine

POJO

JMX

Rule Repository

REST

Servlet

JSON
HTTP/POST

SOAP/
HTTP/
JMS/WMQ

SOAP/
HTTP/
JMS/WMQ

SOAP/
HTTP

SOAP/
HTTP/
JMS/WMQ

SOAP/
HTTP

Business Monitor

Customer Advisor DB

Rule Management Service

RTS Library

Customer Advisor Service

Mediation Flow

JCA JDBC Adapter

JDBC

Backend Processes

Composite Services

Base Services

Business Entity

Mediation Flow

State Machine

Lifecycle services

Data Model

Data services

SOAP/
HTTP
SCA

MDM Function

Collaborate Analyze Operationalize

MDM Data Domains

Product

Account

Party

Location

Business Monitor

DB2 z/OS

IBM BPM for z/OS Process Hub

InfoSphere MDM Server

20

IBM Business Process Manager Advanced for z/OS Portfolio

Social

NEW

Mobile **Coaches** **Portal**

Business Space

Optional Microsoft Add-ons

Process Server - IBM WebSphere Business Process Manager for z/OS: Shopz 5655-Y02

Core BPM			Advanced Integration		
BPMN	Process Rules	Performance Data Warehouse	BPEL	ESB	Adaptors

Deploy **Measure**

Governance / Visibility

Define **Improve**

Repository

Shared Assets

Versioned Assets

Server Registry

Network Multiple Process Centers

Process Center – IBM Process Center Advanced: PPA 5725-C94 D0ILGLL

Process Designer - IBM Process Center Advanced: PPA 5725-C94 D0IMXLL

Integration Designer - IBM Process Center Advanced: PPA 5725-C94 D0INZLL

Transactional Performance:
Growing with the needs of your business

Up is good

Relative Business Transactions per CPU second

Value
1
1.45
1.69
2.65
3.13
3.29
4.09
5.52

BPM z/OS V8.0 For zEC12 is on average 40 – 60 % Improved over Z196 (HW+SW)

BPM z/OS For zEC12 is Improved 200+% Over WPS V7.x Z10 (HW+SW)

Legend:
- WPS6.0.1.2 z9
- WPS6.0.2.1 z9
- WPS6.1 z9
- WPS6.1 z10
- WPS6.2 z10
- WPS7.0.0.1 z10
- BPM7.5.0.1 z196
- BPM8.0.0.0 zEC12
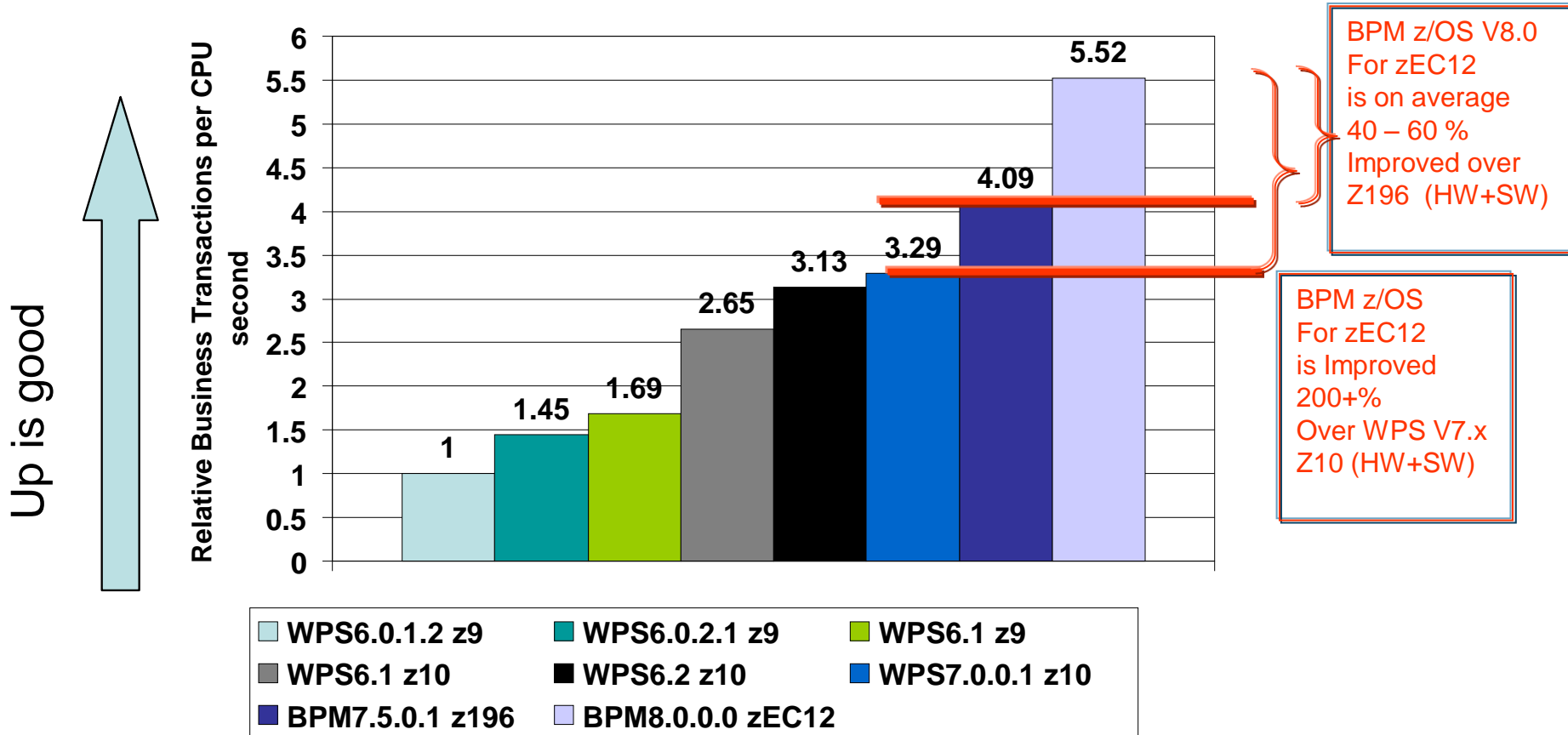
BPM8.0.0.0 on zEC12 throughput is improved by about 452% as comp ared to WPS6.0.1.2 on z9

Get on the path to repeatable success

*IBM **delivers the fastest path** to process improvement (10 weeks or less)*

Engage experts that focus on *BPM adoption and client success*

Partner with a global solution-focused practice with *unparalleled expertise*

Flexible engagement models to optimize access to expertise with *low total cost of ownership*

Use a proven methodology from a trusted partner

IBM

Start small, *grow fast*

3 **Transform Across and Beyond the Enterprise**

2 **Establish a Program**

1 **Build Project-Based Credibility**

Project…   to Program…   to Transformation

IBM is the undisputed leader in BPM

#1 **in BPMS market share***

Over *5000* BPM customers worldwide and growing!

IBM was named the *number one vendor in BPM software* with a 24.7 percent share, well *over twice that of its closest competitor**

Gartner *Report: A Decade of Leadership. IBM Named Marketshare Leader in Middleware Software for 10th Consecutive Year*

*Source: Gartner, Inc., Market Share: All Software Markets, Worldwide, 2010, March 30, 2011

Get started today

Visit IBM Blueworks Live to learn more about BPM and capture business designs

Contact IBM for a Business Process Improvement Workshop

Consider a Quick Win Pilot to get a jump start

ibm.com/bpm

Where can I find out more?

- Business Process Management & Operational Decision Management
  - Discover, document, automate, and improve business processes: http://www.ibm.com/bpm
  - Business Process Manager Advanced for z/OS: http://www.ibm.com/software/products/us/en/business-process-manager-zos
  - Automate and manage your repeatable business decisions with next generation business rules: http://www.ibm.com/ibmodm
  - IBM Operational Decision Manager for z/OS: http://www.ibm.com/software/products/us/en/odm-zos/

- White papers & tech docs
  - Optimizing process management with IBM System z
  - 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)
  - BPM V 8 for z/OS Configuration Guide tech doc: http://www.ibm.com/support/techdocs/atsmastr.nsf/WebIndex/WP102075

- Redbooks
  - Batch Modernization on z/OS
  - Patterns: Integrating WebSphere ILOG JRules with IBM Software

- Demos
  - IBM BPM In Action demos
  - WebSphere Operational Decision Management YouTube demo

- Top 10 Business Use Cases for Operational Decision Management

- Good Decision! Decision Management blog

- System z pricing