The Transformation of AD to SOA

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Manager, IBM Rational Software Product Line Management

Today's Agenda

? Executive Challenges

? More on SOA

? What's New in the Rational Software for System z

Enterprise pressures and opportunities

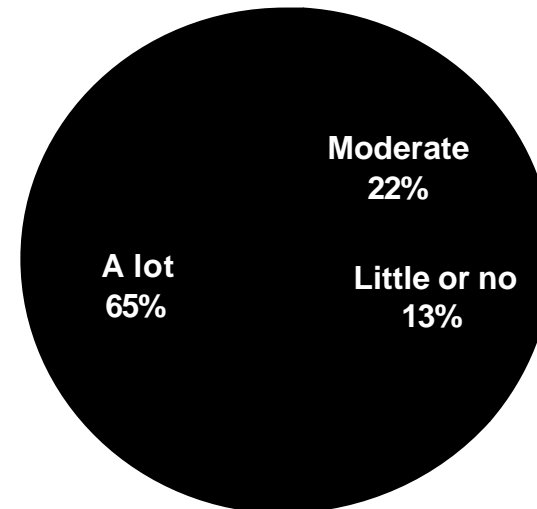commoditization pressures

new/increased competition

global market opportunities

adjacent market opportunities

global volatility & disruption

competing business models

CEOs: Extent of fundamental **change needed** over next two years

Moderate 22%
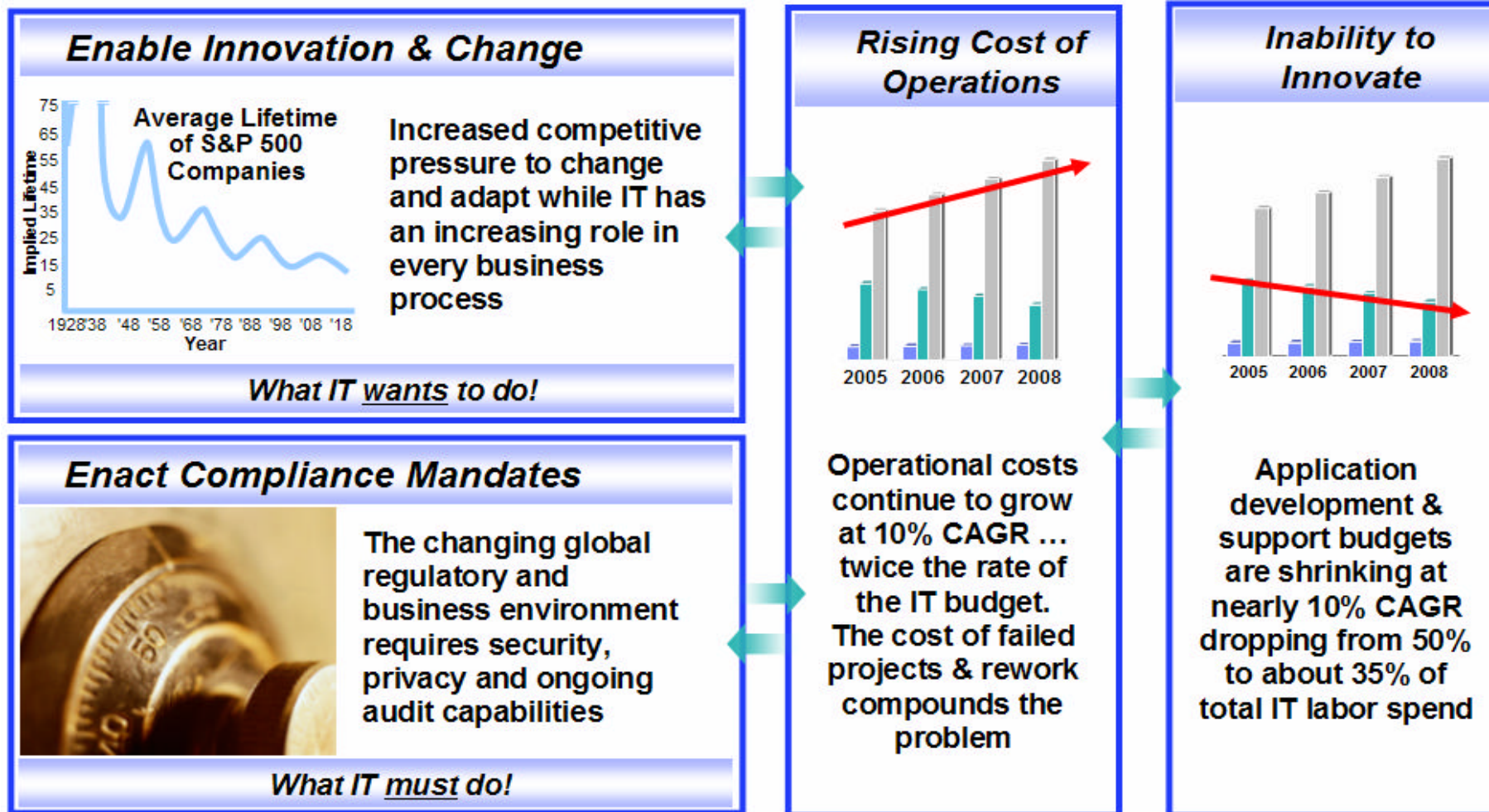
A lot 65%

Little or no 13%

... and 83% think its likely that changes in a competitor's business model will change their industry

Source: IBM Global CEO Study 2006

"Most organizations would like to use technology as a competitive weapon .. but they're not doing so because they have a performance-oriented mindset."

IT & Business Executive Pressures

Enable Innovation & Change

Average Lifetime of S&P 500 Companies

(Chart: Implied Lifetime vs. Year — 1928, '38, '48, '58, '68, '78, '88, '98, '08, '18; Implied Lifetime axis: 5, 15, 25, 35, 45, 55, 65, 75)

Increased competitive pressure to change and adapt while IT has an increasing role in every business process

What IT wants to do!

Enact Compliance Mandates

The changing global regulatory and business environment requires security, privacy and ongoing audit capabilities

What IT must do!

Rising Cost of Operations

(Bar chart: 2005 2006 2007 2008)

Operational costs continue to grow at 10% CAGR ... twice the rate of the IT budget. The cost of failed projects & rework compounds the problem

Inability to Innovate

(Bar chart: 2005 2006 2007 2008)

Application development & support budgets are shrinking at nearly 10% CAGR dropping from 50% to about 35% of total IT labor spend

Bottom line: IT flexibility enable business flexibility

Trends that impact *Mainframe* software and systems delivery

| TRADITIONAL	BUSINESS TRENDS	CURRENT REALITY
Co-located teams	*Right-sourcing*	Geographically distributed
Technology led		Compliance
Vendor lock-in	*Standards*	Open computing
Application silos		
Growing investment	*Growing Transactions*	Managed investment
Stable staff	*Very High QOS*	New staff
Managed change	*Innovation (Do More)*	Rapid technology change
Platform silos		Composite portfolios

IBM Rational Software Delivery Platform
Focus for System z

Help customers to implement **asset management** of existing applications and assets, from the practitioner level to the CIO level. .

Provide seamless change, build, and release management, as well as **team collaboration** for modern composite applications that cross System z and other system boundaries.
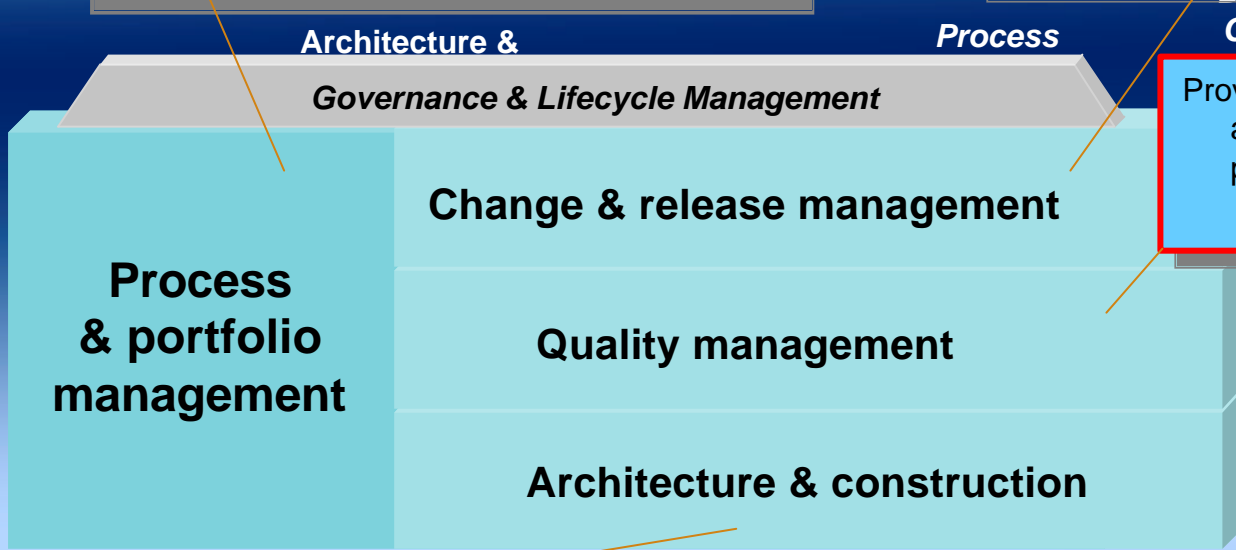
Provide solutions for System z and composite application based **quality management** processes.

Architecture & *Process* *Compilers*

Governance & Lifecycle Management

Change & release management

Process & portfolio management

Quality management

Quality Management **Construction**

Architecture & construction

Mainframe mpilers

500 Developers

Embrace industry architectural standards & technologies.

Simplify delivery of modern, **SOA** based composite applications.

Emphasize uniquely valuable elements of System z platform…and make them easy to leverage in our tools.

Ensure that customers have **enterprise modernization** solutions that transition them to a strategic destination.

IT as a Core Business Process

- IT flexibility is a key enabler for today's businesses

- To be successful, you <u>must</u> mature and modernize your IT
  tools and processes

- Companies face significant challenges getting from "here"
  to "there". These challenges include…

Why …on System z

- ✍ **Excellent Qualities of Service**

- ✍ **Significant Existing Processing**

- ✍ **Very Large Developer Community**
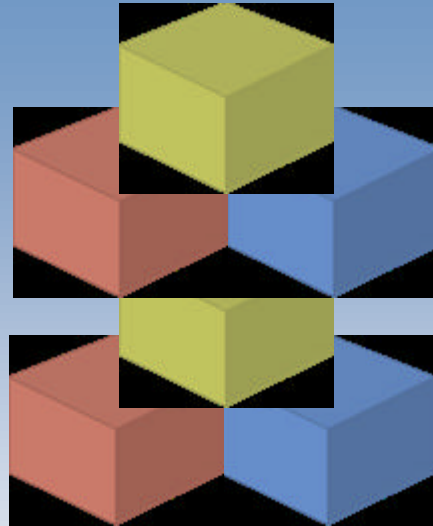
- ✍ **Architecturally Compatible**

- ✍ **Operationally Superior**

Designed for data serving and SOA

SOA: The focus is on Flexibility and Reuse

Business Perspective

Modern UI's linked with Business Process

- Orchestrated sequence of Activities
- Separated elements
    - ✍ Activity sequence
    - ✍ Activity hand-off
    - ✍ Activity content

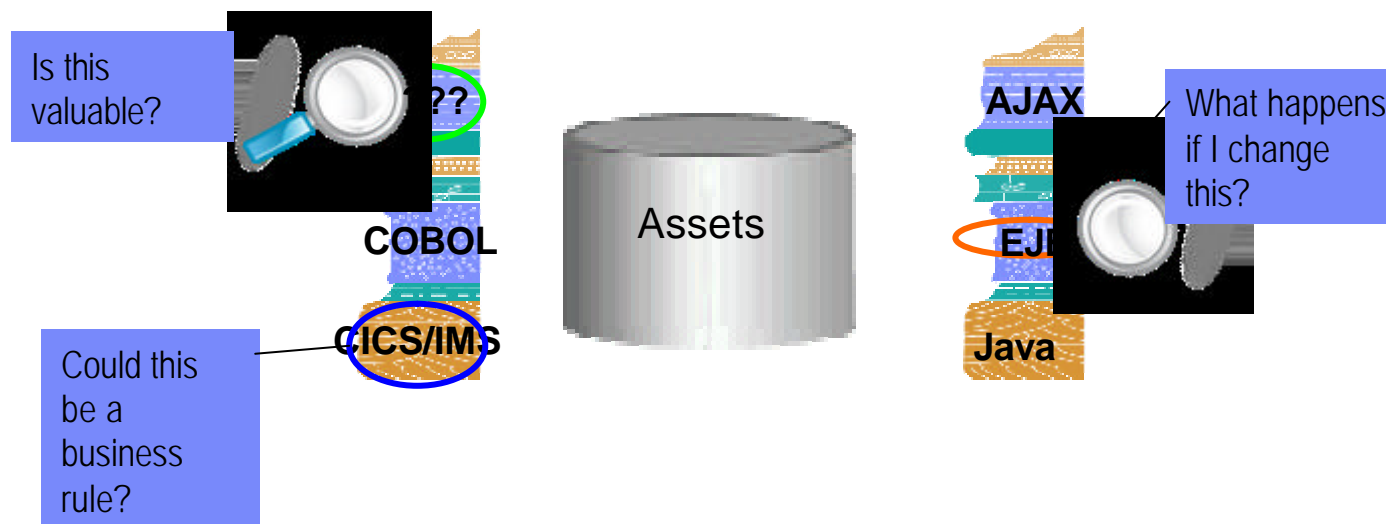## IT Perspective

Web User Interfaces and Composite Application

- Orchestrated flows of Services
    - ✍ Tooling
- Separated logic
    - ✍ Process flow
    - ✍ Connectivity
    - ✍ Business

Flexible high QOS Business Functions

Why Service Oriented Architecture? …

- Enables re-use of existing assets
- Enhances system flexibility through logic isolation
- Supports simplified integration of new assets with existing assets

Challenge #1 - No inventory of current assets

- Difficult to gauge impact of code changes without electronic dependency information

- Absence of asset inventory inhibits reuse in new contexts (e.g. as a service)

- Cannot separate business rules from the code, constraining flexibility

Is this valuable?

??

AJAX

What happens if I change this?

Assets

COBOL

EJ

CICS/IMS

Java

Could this be a business rule?

Analyst studies have found it 5X less expensive to re-use existing applications than to write new applications.

Challenge #2 - Complex, tightly coupled architectures

- Tightly-coupled architectures reduce flexibility and agility moving to new technologies

- Complexity hampers ability to reuse existing code for new projects

- Multiple implementation technologies and middleware inhibit staff and code mobility

- Absence of asset inventory inhibits reuse in new contexts (e.g. as a service)
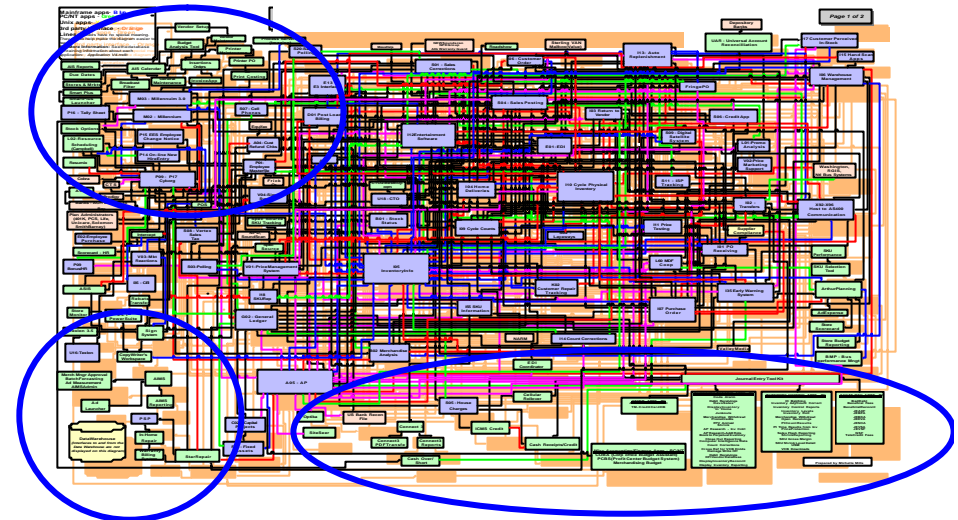
Legend: Blue = System z

"Today's IT architectures, arcane as they may be, are the biggest roadblocks most companies face when making strategic moves."

The *McKinsey Quarterly Special to CNET News.com,*

"Flexible IT, Better Strategy", January 24, 2004

Challenge #3 – Skills lock-in

- Hard to maintain existing applications due to dwindling IT skills

- Difficult to attract new development talent

- Limited ability to exploit hardware innovation without retraining traditional developers to Java

- Constrained IT flexibility due to skills islands
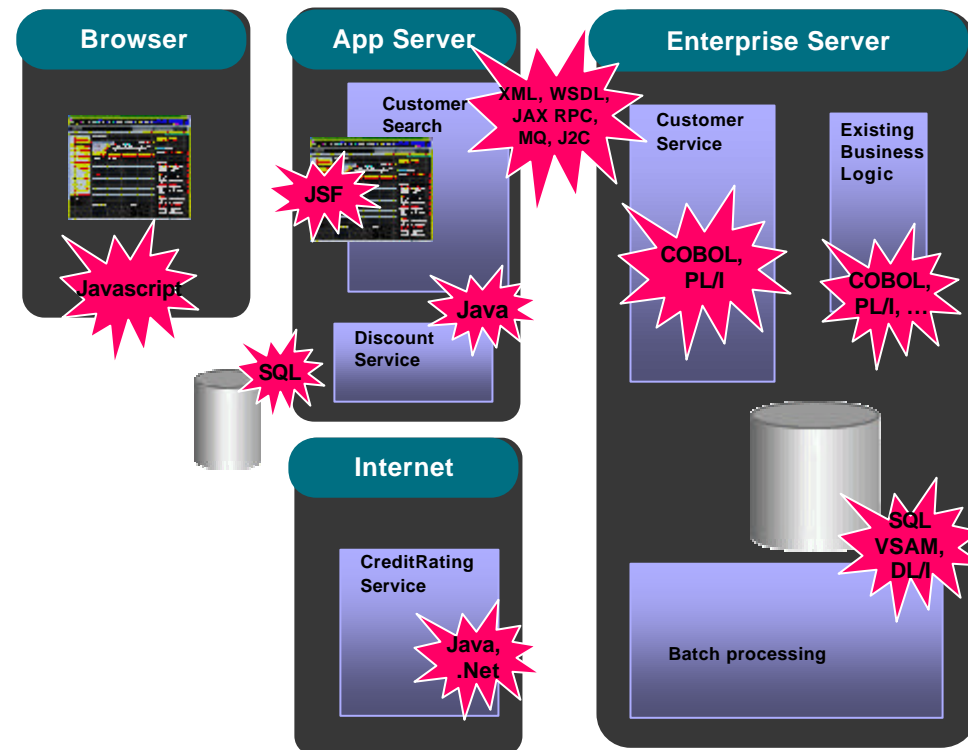
"200 Billion lines of COBOL code in existence" **eWeek**

"5 Billion lines of COBOL code added yearly" **Bill Ulrich, TSG Inc.**

"2 Million COBOL developers" **Gartner**

Challenge #4 - Islands of development

- Duplicate infrastructures limit IT and skills flexibility, introduce errors, reduce productivity
- Constrained IT flexibility due to skills islands
- Multiple infrastructures increases costs, less available for new projects
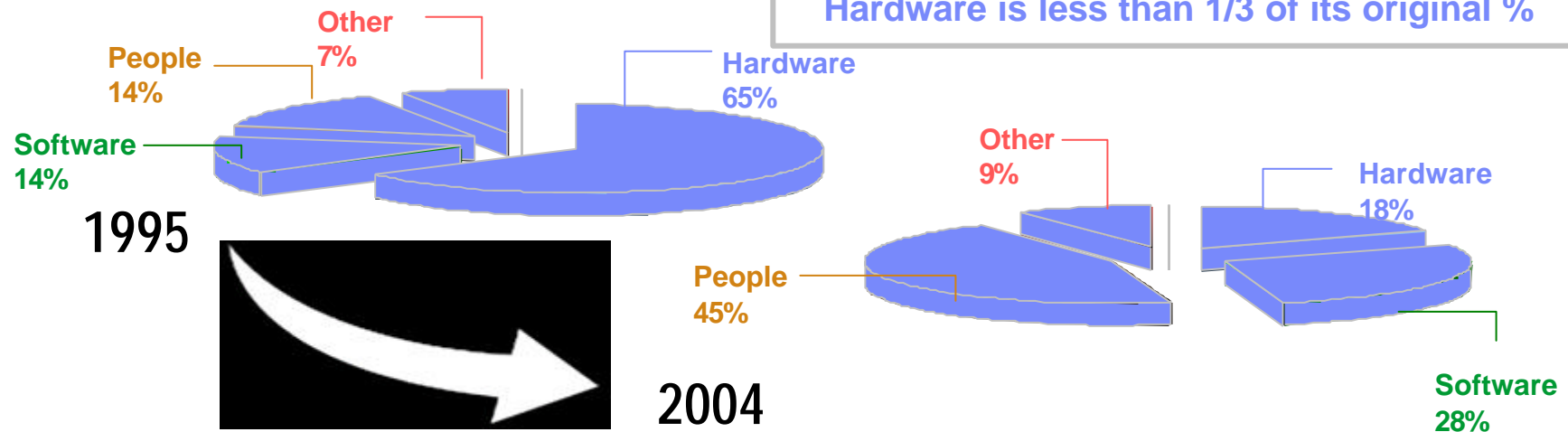- Lack of traceability inhibits end-to-end governance
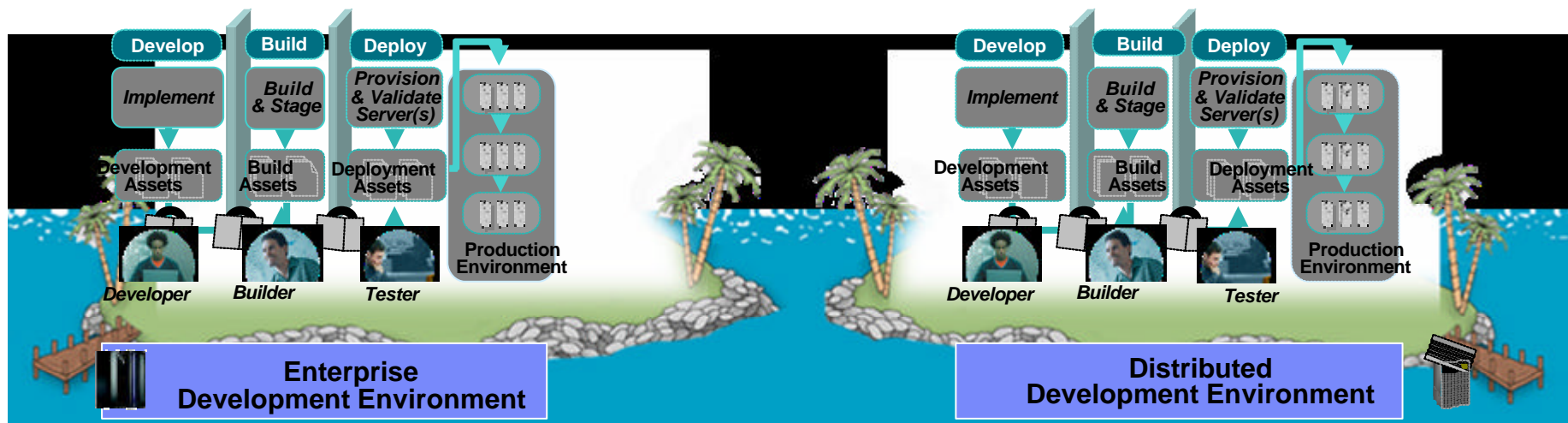
Challenge #5 – Limited budget for new investments

- Resources not available to exploit new opportunities
  - ~78% (and rising!) of IT budgets go to maintenance of existing applications and infrastructure
- Stranded on platforms that are expensive, unsupported and not integrated; cannot leverage new technologies and middleware advances
- No tactical plan for quick improvements that incrementally fit into enterprise modernization strategy

Throughout the past 10 years, the cost dynamics of supporting corporate IT infrastructures has changed significantly, as has the landscape.
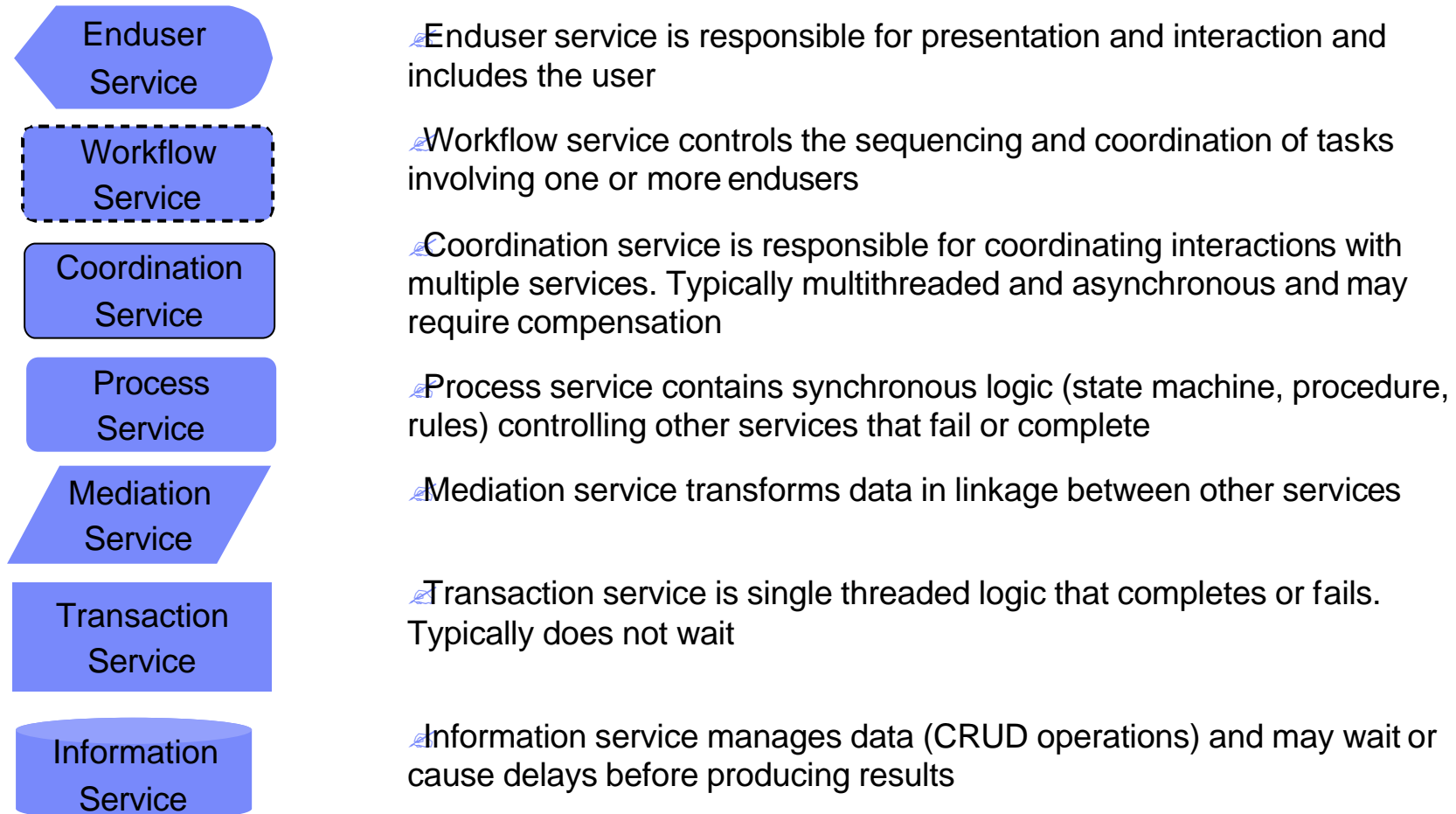*We typically see . . .*

People expense has tripled as a %
Software expense has doubled as a %
Hardware is less than 1/3 of its original %

Other
7%

People
14%

Hardware
65%

Software
14%

1995

Other
9%

Hardware
18%

People
45%

Software
28%

2004

What is SOA?

IBM views SOA as a holistic relationship between the business and the IT organization. SOA encompasses the tools and methodologies for capturing business design, and using that design information to help *improve the business*. It also encompasses the tools, programming model and techniques for implementing the business design in information systems. It encompasses the middleware infrastructure for hosting that implementation. SOA encompasses the management of that implementation to ensure *availability to the business*, and to ensure *efficient use of resources* in the execution of that implementation. It encompasses the establishment of who has authority and the processes that are used to *control changes* in the business design and its implementation in the information system. **And ultimately, SOA accelerates the time-to-value for these benefits**
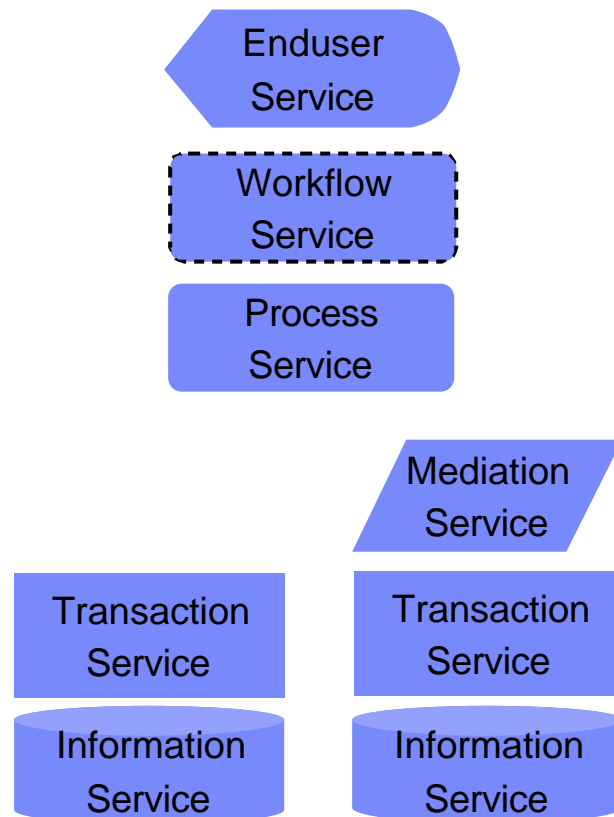
http://www-128.ibm.com/developerworks/webservices/library/ws-soa-whitepaper/

Logical SOA Service Types

Enduser Service

Enduser service is responsible for presentation and interaction and includes the user

Workflow Service

Workflow service controls the sequencing and coordination of tasks involving one or more endusers

Coordination Service

Coordination service is responsible for coordinating interactions with multiple services. Typically multithreaded and asynchronous and may require compensation

Process Service

Process service contains synchronous logic (state machine, procedure, rules) controlling other services that fail or complete

Mediation Service

Mediation service transforms data in linkage between other services

Transaction Service

Transaction service is single threaded logic that completes or fails. Typically does not wait

Information Service

Information service manages data (CRUD operations) and may wait or cause delays before producing results

An Old Application

Enduser
Service

Workflow
Service

Process
Service

Mediation
Service

Transaction
Service

Transaction
Service

Information
Service

Information
Service

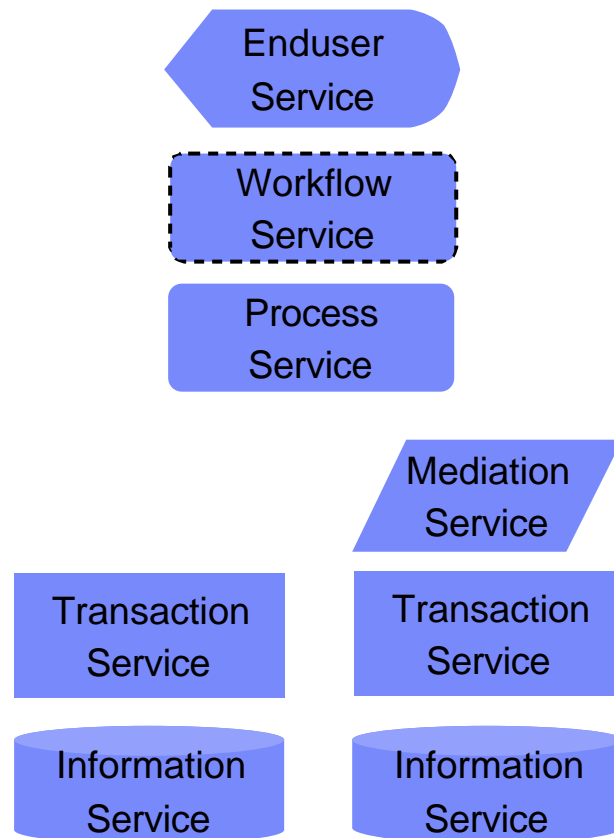✍The application assembly is statically bound within the application (the red rectangle)

✍A subassembly is statically bound within the lime rectangle

✍The application developer wrote some mediation code to adapt the subassembly interface. Typically this involves copying and reshaping data.

✍The enduser service is controlled by a workflow process, and both are statically bound within the application

✍**Making any change requires opening and redeveloping the application**

An Extreme Example of SOA (WS Binding)

Enduser
Service

Workflow
Service

Process
Service

Mediation
Service

Transaction
Service

Transaction
Service

Information
Service

Information
Service

✍The use of WS Binding everywhere will decrease performance and increase resource usage

✍The use of WS Binding everywhere provides maximum flexibility to change the application, as only the component needing to be redeveloped must be opened.

A Good Example of SOA

Enduser Service

Workflow Service

Process Service

Mediation Service

Transaction Service

Transaction Service

Information Service

Information Service
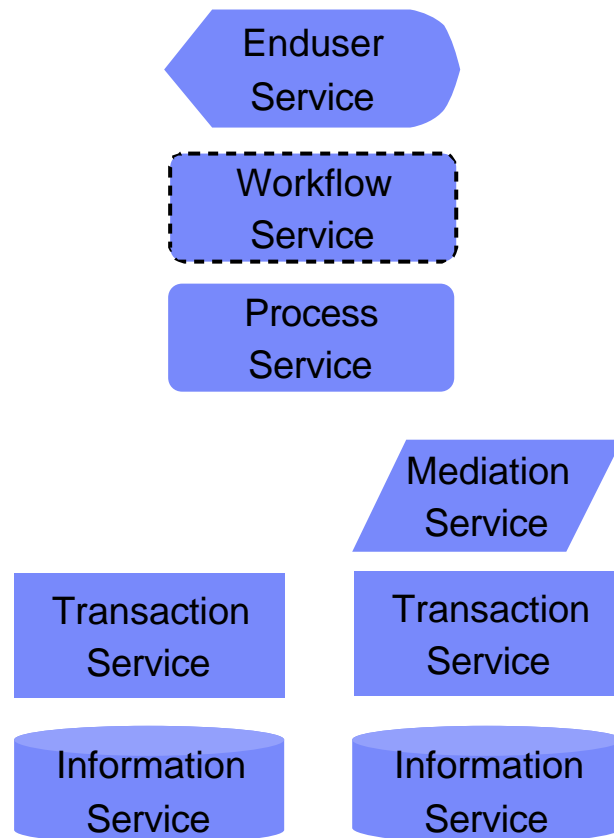
- The process service and its associated components have high performing but less malleable bindings

- Additional dynamic bindings may be made to the process service, increasing its value through reuse

- Workflow and enduser services are separated because they:

  - Tend to change more rapidly than other elements

  - Are rate limited by human performance

How does SOA accelerate time to value in applications?

- It decreases complexity by providing a uniform way of linking services and a uniform framework for integrating them.

- It replaces static linkage of services with dynamic linkage and reduces the resistance to change, allowing IT to track changes in business processes

- It provides reuse and encourages consistency

- It simplifies operations by providing a uniform way to monitor and manage services

- It simplifies service implementations by handling resource and other management tasks in service containers

IBM SDP – More from Rational
A more complete, coherent and integrated set of AD solutions

GOVERNANCE DASHBOARD

ReqPro

WSAA
ATW

WS
Business
Monitor

Monitor
Business

Model
Business

Manage
Requirements

Discover /
Understand/
Reuse

Model
Applications
& Data

RSA
RSM
RSD
RDA

Enterprise Integrated Process & Workflow

Monitor
Applications

Deploy

Test / Debug

Assemble

Develop

ITCAM
Omegamon
Fault Analyzer
Application Performance

RAD
RBDe
RDz
WDSC-
AE HATS
WDHT

TEAM INFRASTRUCTURE

SCLM AE

rifyPlus
MT

Transform ... cle portfolio.

Aspects of Enterprise Modernization

Modernize your enterprise in the following areas to improve IT flexibility:

PORTFOLIOS
Discover, understand, and transform existing applications, assets, and services

ARCHITECTURES
Develop new SOA applications, reuse existing applications as services

PROCESSES AND TOOLS
Leverage modern processes and technology to reduce costs, improve quality and productivity

SKILLS
Rapidly develop cross-platform applications using new and existing skills

INVESTMENTS
Invest resources in new opportunities

| System z | System i | Distributed |

Developing "traditional" z/OS applications

- Batch vs. online applications
- Subsystems that support applications
    - CICS
    - IMS
    - JES
- Data file formats and encoding
- "Traditional" languages
    - Interpreted vs. compiled
- Job Control Language (JCL)
- TSO and ISPF
- 3270 terminal access and emulation

Sometimes it helps to know where you came from to know where you're going…

Transaction Management – the zSeries application "sweet spot"

- Transaction monitor – manages a transaction
  - A program or subsystem that manages or oversees the sequence of events that are part of a transaction
  - Makes sure the ACID properties of a transaction are maintained
  - Includes functions such as interfacing to databases and networks and transaction commit/rollback coordination
  - Provides an API so applications can exploit the services of the transaction monitor

- IBM's z/OS-based transaction monitors:
  - IMS - Information Management System
  - CICS - Customer Information Control System
  - WebSphere Application Server for z/OS

- A key strength of the z/OS platform is support for high-volume, high-performance transaction management using transaction monitors

IMS – Information Management System

- ✍ "IMS Runs the World" since 1968:

  - 🔷 **Most Corporate Data is Managed by IMS**
    - ✍ Over 95% of Fortune 1000 Companies use IMS
    - ✍ IMS Manages over 15 Billion GBs of Production Data
    - ✍ $2 Trillion/day transferred thru IMS by one customer

  - 🔷 **Over 50 Billion Transactions a Day run through IMS**
    - ✍ IMS serves close to 200 Million users per day
    - ✍ Over 79 million IMS trans/day handled by one customer on a single production Sysplex, 30 million trans/day on a single CEC
    - ✍ 120M IMS trans/day, 7M per hour handled by one customer
    - ✍ 4000 trans/sec (250 million/day) across TCP/IP to a single IMS
    - ✍ Over 3000 days without an outage at one large customer
    - ✍ 21,000 transactions per second on a single z990, with 4 IMS servers

- ✍ IMS provides both a transaction manager (IMS TM) and hierarchical database manager (IMS DB)

the world depends on it

CICS – Customer Information Control System

- 30+ years of applications
- >30B transactions per day
- 5000 packages/2000 ISVs
- 30M CICS users
- 50K CICS/390 licenses, 16K customers
- 950,000 CICS application programmers
  - "it's the programming model!"
- 490 of IBM's top 500 customers

- What is it?
  - CICS provides an execution environment for concurrent program execution for multiple end users, who have access to multiple data types.
  - CICS will manage the operating environment to provide performance, scalability, security, and integrity

CICS: 35 years

35 CICS

The Java Transaction Manager:
WebSphere Application Server for z/OS

- Architected on SOA infrastructure & principles
  - Fully J2EE 1.4 platform certified
  - Leading Web Services support
  - WebSphere Rapid Development & Deployment
- zAAP enabled (z9 EC/BC, z990, z890)
  - Run Java applications next to mission critical data
  - Lower the cost of computing for WebSphere Application Server (and all z/OS based Java applications)
- Common code infrastructure
  - Administration skills shared between platforms
  - Develop anywhere, run on WebSphere Application Server for z/OS
- Native OS support – leverages the z/OS platform
- Optimization features designed to provide security and data interaction, including support for the traditional mainframe SW – CICS, IMS, DB2
- Enhanced QoS within the product, complementary to QoS of the platform

Integrated WS app server for z/OS & DB Serving w/zAAP

1st Tier

Client

Client

Client

2nd Tier

Standard CP   zAAP

Integrated z/OS Application & Database Server
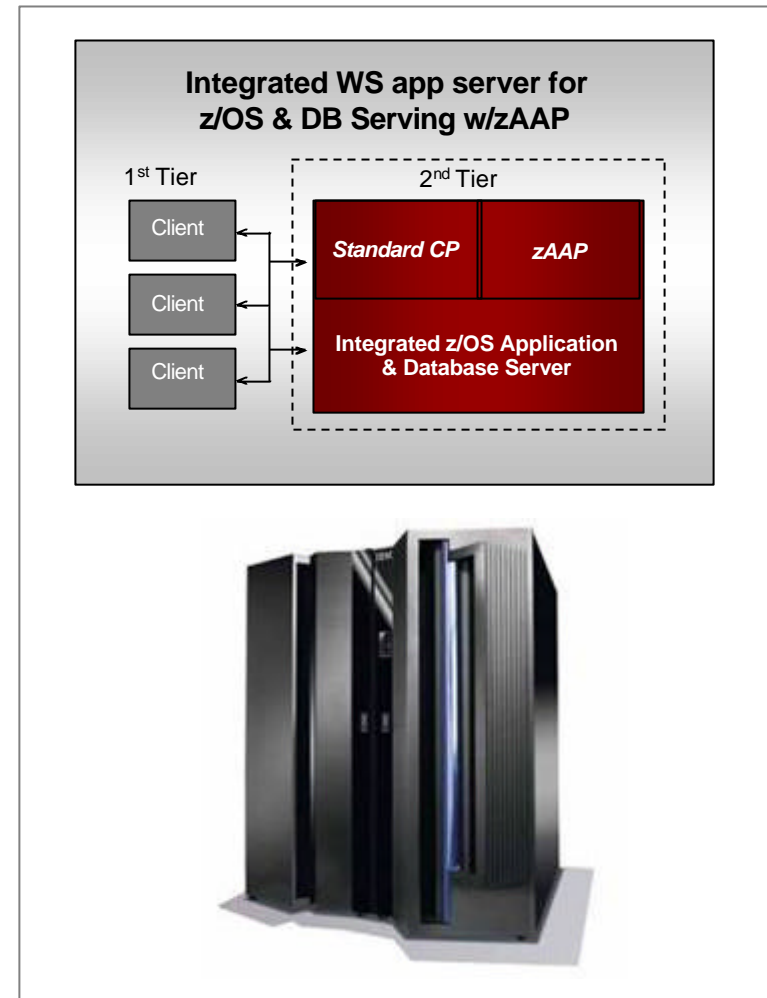
SOA Enabling Existing Applications

Wrapping

Mediation
Service

Enduser
Service

Workflow
Service

Process
Service

Mediation
Service

Transaction
Service

Transaction
Service

Information
Service

Information
Service
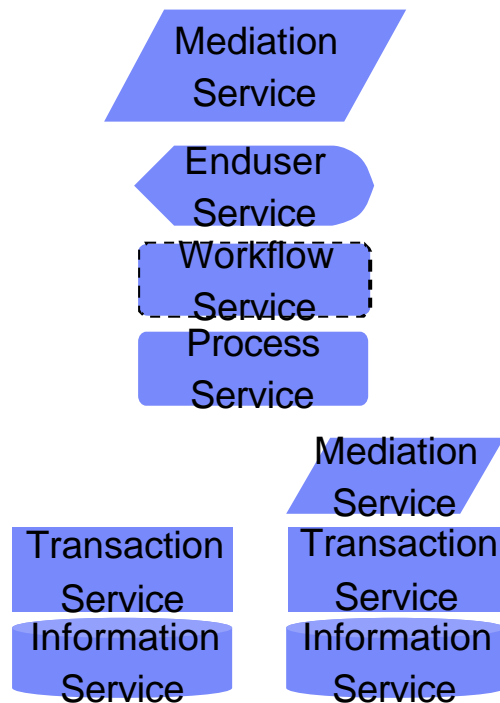
- No change to the application – but limited reuse and may be less efficient

- Only available for Web Services invocation of existing application

- Mediation can be supplied in various forms

  - CICS Service Flow Feature and LINK3270 Bridge

  - Host Access Transformation Services (HATS)

  - Websphere Application Server via JCA connector

  - Websphere Application Server via JDBC

Refacing

The application is reengineered to expose internal process services and to separate the workflow and enduser services. This technique requires more change to the application but may provide better performance and resource usage.
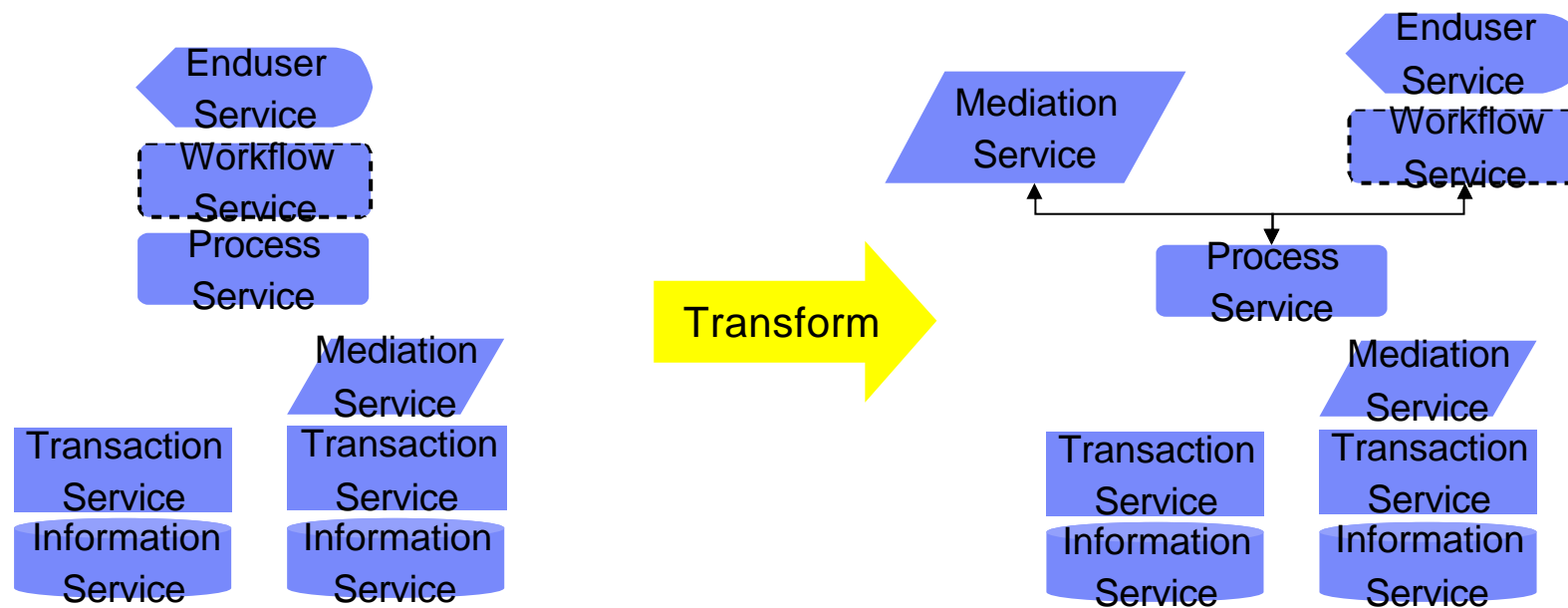
Componentization

✎ The application is reengineered to expose the process service and to detach the internal component as a separate service. This would be done when there is need to reuse the internal component. The separation may introduce additional execution overhead (compared with Refacing Technique 2)
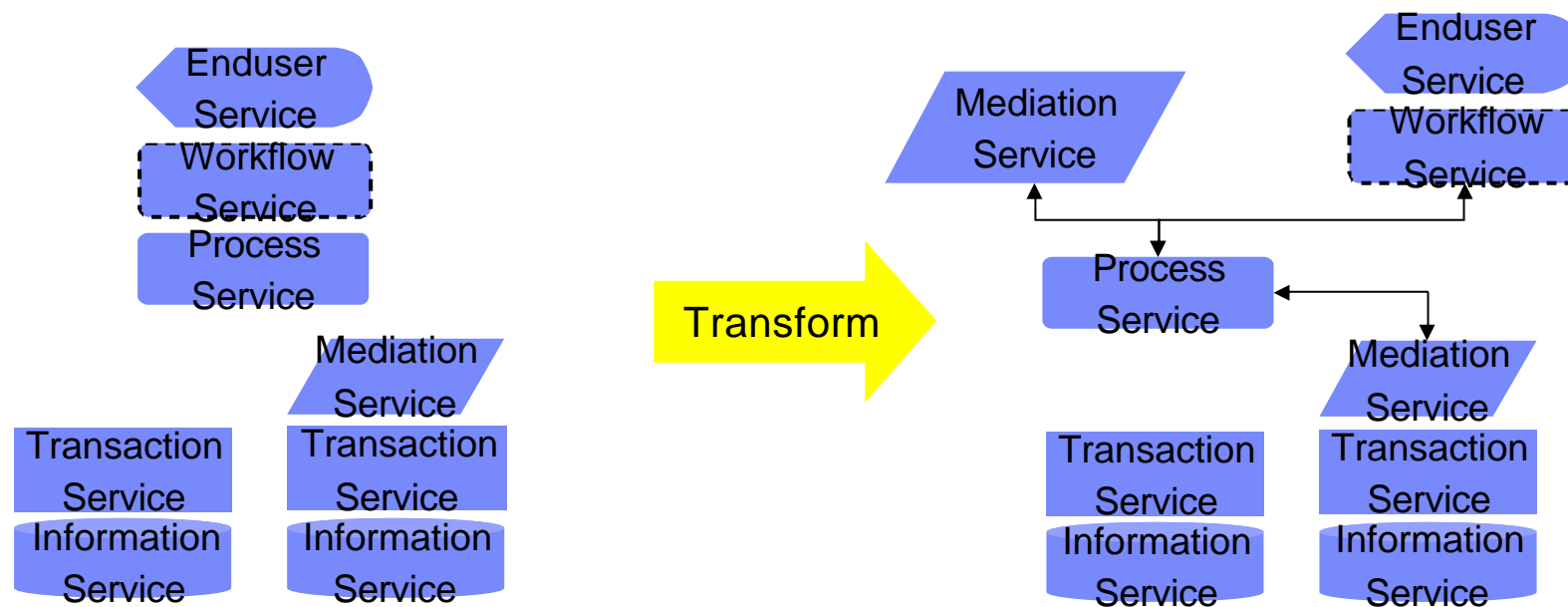
Process Implementations

- Process execution has high performance requirements and low to moderate rate of change
  - Implement in Java, deploy in Websphere or batch
  - Implement in COBOL, PL/I or C for highest performance
- Process execution has moderate performance requirements and high rate of change
  - Implement in BPEL, deploy in Websphere Process Server
  - Implement in CICS Service Flow Modeler, deploy in CICS

Modernize Your Portfolios
Discover, understand, and leverage existing applications & services

- Understand existing assets and interdependencies using **WebSphere Studio Asset Analyzer (WSAA)**

- Discover potential services and refactor existing assets with **Asset Transformation Workbench (ATW)**

- Manage assets across their lifecycle from design and creation to consumption and change with **Rational Asset Manager (RAM)**

- Deploy and manage runtime services using **WebSphere Service Registry & Repository (WSRR)**

Bridge the gap between services and application processing

Manages information that is useful for developing, re-using and managing all types of ~~...~~

Manages information that is useful for the runtime operation, management and development ~~...~~

ClearQuest	ClearCase	Software Architect

CICS/IMS	Generic Client (.Net or other)	ESB, Message Broker	Process Server

WebSphere S~~...~~

Define *Search/Retrieve* *Create/Modify* *Measure* *Govern*

And Publish

Publish *Find* *Enrich* *Manage* *Govern*

WebSphere Asset Analyzer/Asset Transformation Workbench

Measure Quality	Evaluate Standards	Validate Architecture	Mine Business rules	Understand Impact	Estimate Change

- ✎ **Gain asset clarity with respect to assets, services and relationships**
- **Combine logical and physical views of service(WSDL) assets and processes**
- ✎ **Discern application impacts of services and underlying processing**
- ✎ **Publish and manage assets across organizations**

Modernize with automation

Service Management

(WSRR)

Application Portfolio Understanding

(WSAA)

| Component -ization | Business Rule Management | Redevelop- ment |

Mass Change Activities

Asset Transformation Workbench

Development (WD/z)

ATW Analyzer for Eclipse
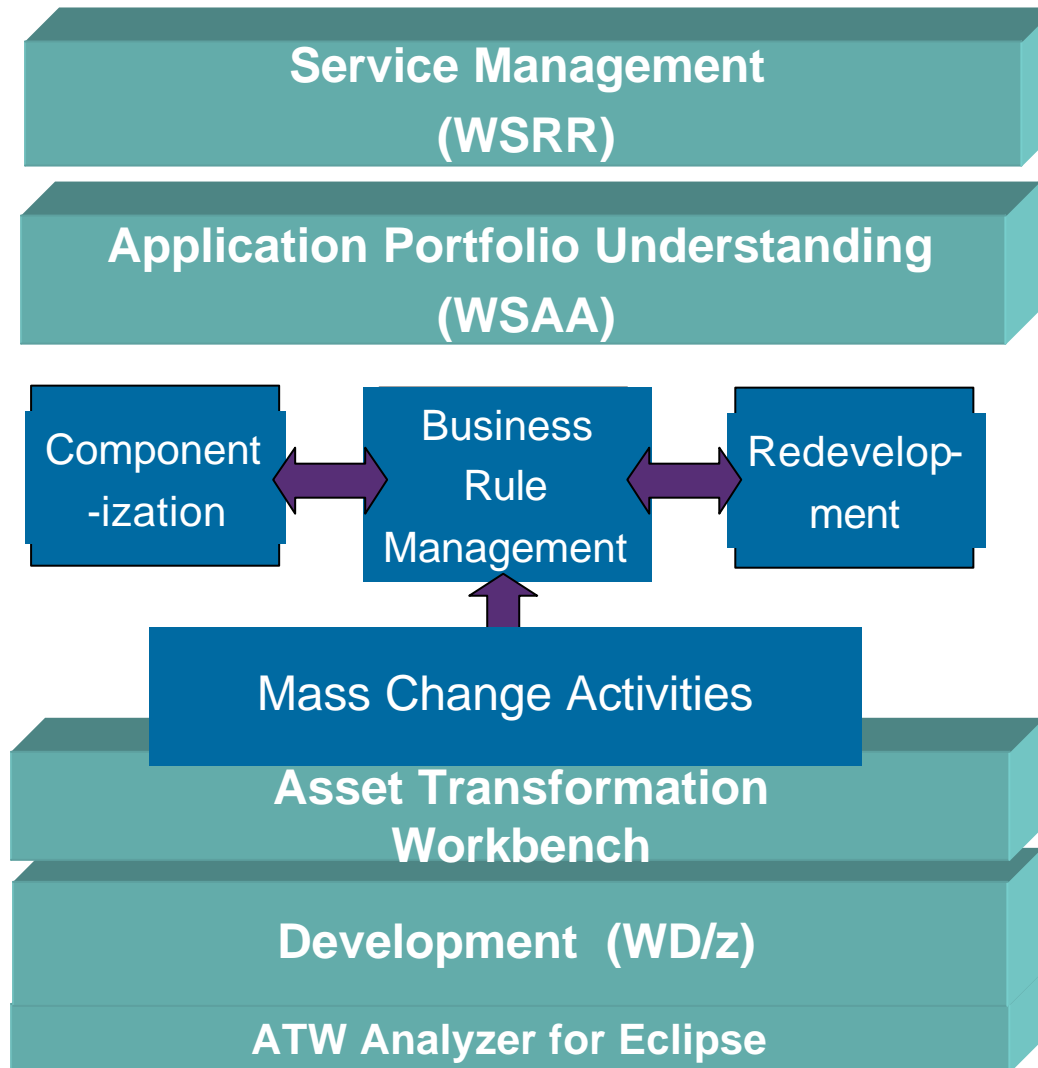
Capabilities:

- **Find and Use:** Find Services and understand application processes
- **Componentize:** Enable reuse of monolithic processes
- **Mine business rules:** Tying business understanding and processing to code enabling activity
- **Redevelop:** Documenting to drive replacement strategies
- **Mass Change:** Addressing major new business initiatives in a timely manner
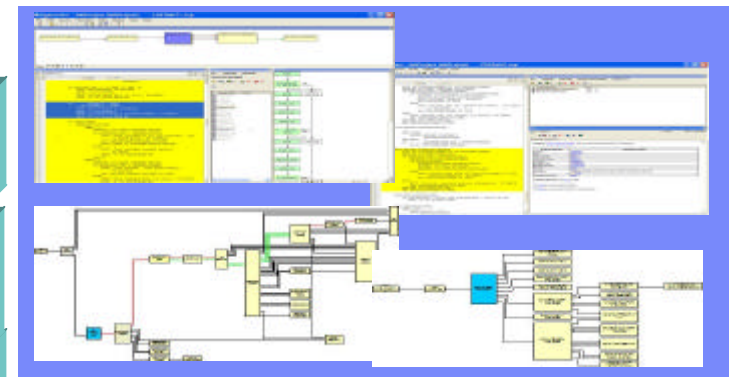
Modernize Your Portfolios
Customer examples

Background:
- Multinational auto manufacturer
- Current product accessories system includes IBM IMS™ transactions, databases and batch jobs

Challenge:
- Expand existing systems to offer more higher-margin accessories; requires change to field used by >1300 programs
- Identify obsolete code within their automotive systems and begin a "decommissioning" process

Solution:
- Performed impact analysis with **WSAA**, coupled with GBS Test Environment Builder to accelerate system verification
- Now employing **ATW** to start "decommissioning" process

"We are very pleased with WSAA. It is doing just what we want and need it to do." - AD manager

Background:
- One of US' largest health insurance providers
- In five-year program to modernize mainframe-based claims processing software

Challenge:
- Make code more component-based and manageable
- Identify business services to leverage across the enterprise

Solution:
- Use **ATW** to find and extract the valuable business logic buried within legacy applications
- Publish artifacts so they can be viewed and modified by business analysts using a Web browser

"We're finding that we can very rapidly go into existing COBOL code and extract the logic around certain business objects." - Gary Free, senior systems consultant, Highmark

Modernize Your Architectures
Flexible architectures to enable business agility

- Easily create services from existing code (CICS, IMS, i5/OS, teminal applications)
- Define services for all deployment platforms from initial design to implementation
- Separate service flow from service implementation to attain optimal flexibility
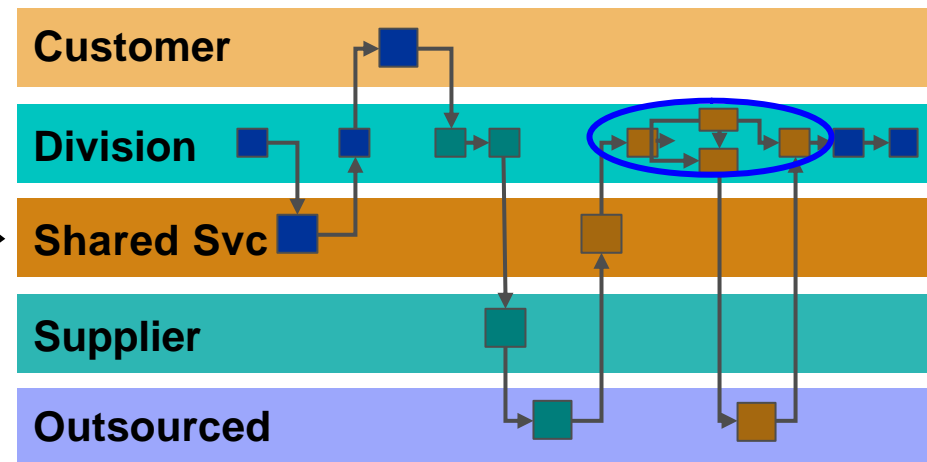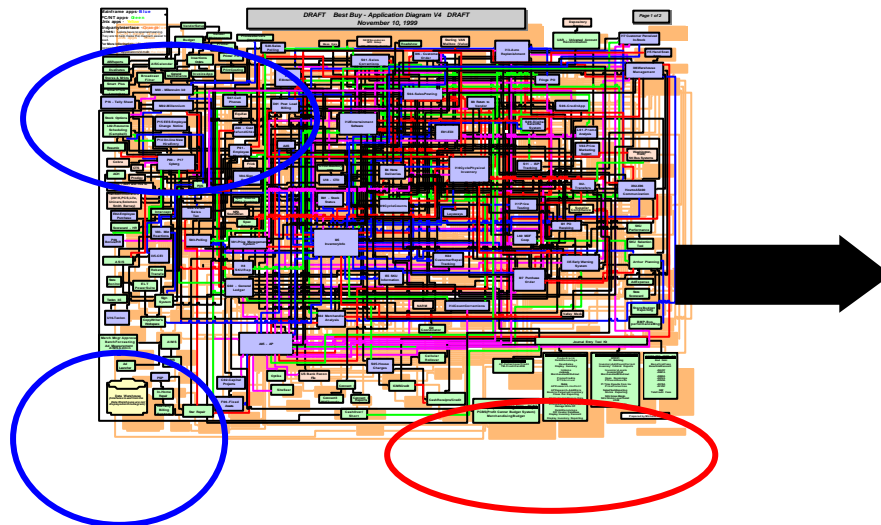
Modernize Your Architectures
Develop new SOA applications rapidly from the ground up

- Use Model-Driven Development (MDD) to architect services and data with **Rational Software Architect (RSA)** and **Rational Data Architect**
    - Transform UML to EGL, COBOL, Java, WSDL, and C++

- Rapidly build and publish services using support in **Rational Business Developer Extension (RBDe)**
    - Leverage *Service* and *Interface* keywords to re-enforce SOA development principles; supports CICS and J2EE
    - Generate a skeleton EGL program to match WSDL

- Generate a skeleton COBOL program to match a Web Service definition (WSDL) using **Rational Developer for System z (RDz)**

Modernize Your Architectures
Develop new SOA applications rapidly by reusing existing assets

- Quickly create Web Services from existing RPG, COBOL, PL/I, Java or EGL using
  WebSphere Development Studio Client (WDSC)
  Rational Developer for System z (RDz)
  Rational Business Developer Extension (RBDe)

- Generate Web Services from scripted navigation through existing terminal applications using
  Host Access Transformation Services (HATS)

- Build new services flows from existing Commarea, Channel, terminal-based, and MQ applications using the **Service Flow Modeler** in **RDz**

- Rapidly consume Web Services with **RBDe** or **WDz**

Announcing: Rational Developer for System z

New and Enhanced!

Announcing! V7.1; GA 9/07

Enhance System z developer:

- Productivity addressing modern Service Oriented Architectures
- Support for User Interface development in Web, BMS, IMS
- Generates Connectivity via Web Services and Connectors leveraging CTG and IMS Connect
- Skills enhancement supporting popular service languages and runtimes including UML to COBOL

- **New-** Rapidly develop services to orchestrate process flows in CICS V3.2

- **New-** Improve lifecycle through integration to IBM File Manager and IBM Fault Analyzer

Delivered Over 150 Modern Application Architecture for COBOL Developer sessions

UI

View

Control

ESB
JCA
Control
WS

Service Flows
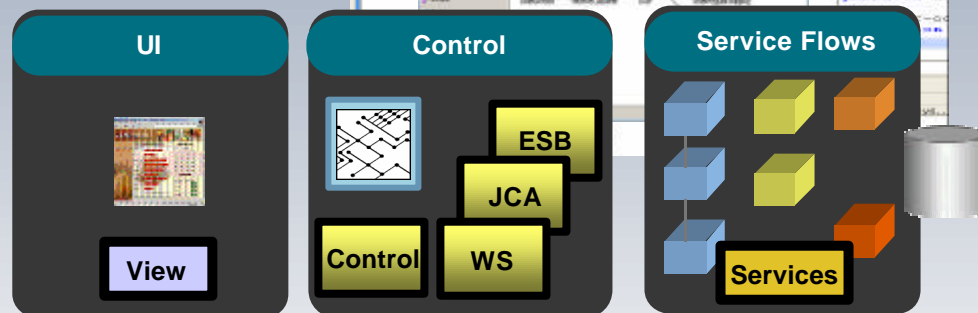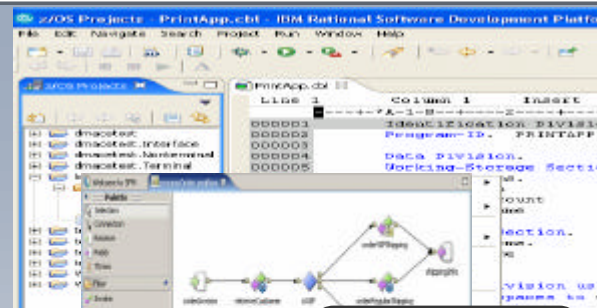
Services

EGL, COBOL, PL/I, C, C++, Java

WebSphere, CICS, IMS, Batch zOS, zLinux

WebSphere Host Access Transformation Services

Automatically transforms 3270 & 5250 green screen applications into HTML interfaces

Extends terminal applications as Web Services

Low skills requirement – no zSeries skills required

Rules-based, highly customizable

Iterative, eclipse-based development environment

Deployable and extendable via WebSphere

Great first step in moving to WebSphere

HATS

- *A rules-based Web-to-host transformation engine…*
  - Default rules allow host applications to be on the Web within hours
  - No programming skills required
  - No need to customize every screen, no need to access or modify source code

- *...that provides customized access to one or more host applications...*
  - Merge data from various sources into a single Web interface
  - Add further customization at your own pace

- *...and dynamically creates a new Web HTML interface,*
  - Zero-footprint, zero-download
  - Only software needed on the client is a Web browser
  - Real-time, on-the-fly transformation means that HATS does not "break down" when changes are made to the host application

- *….while significantly improving the navigation and productivity of legacy applications*
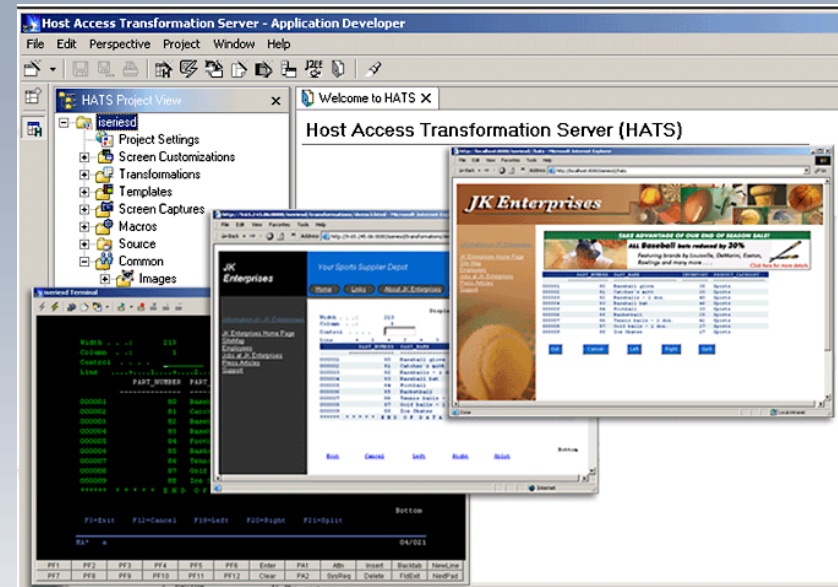
Modernize Your Skills
Powerful tools & abstractions for multi-platform development

- Apply existing "business-knowledgeable" staff on multi-platform projects
- Utilize new employees on any project independent of target platform
- Leverage abstractions that hide underlying middleware technology complexity

App Server

custSearch.jsp

custSearch

PIM

JSF

Browser

custSearch.jsp

JavaScript

Note:
No exposure of
communication
technology

Discount
Service

PIM

SQL

Enterprise Server

Customer
Service

PIM

Existing
Business
Logic

PL/I,
COBOL
HLSAM

SQL

PIM

Credit
Rating
Service

Java,
Net

Internet
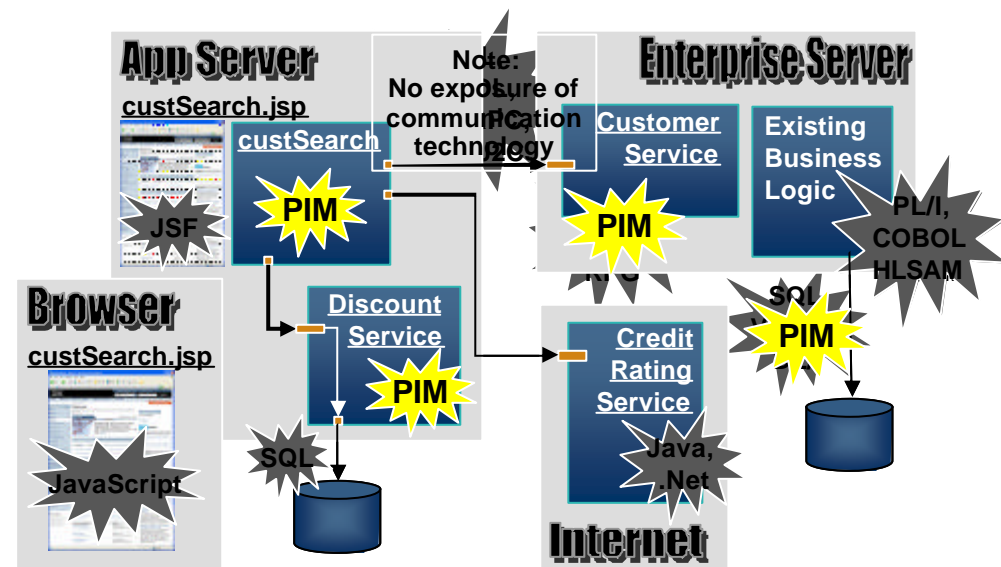
PIM = Platform Independent Model

Modernize Your Skills

Develop technology-independent applications using all skills

- Exploit advances in middleware and technology while writing business applications using **Enterprise Generation Language (EGL)** support in **Rational Business Developer extension (RBDe)**

  - Eliminate skill islands – EGL developers are platform independent "business developers," able to develop applications for most platforms: CICS, IMS, z/OS Batch, WAS, Linux, Windows, AIX, i5OS, HP-UX, Solaris

  - Leverage [future] standard business language to achieve high productivity, platform independence
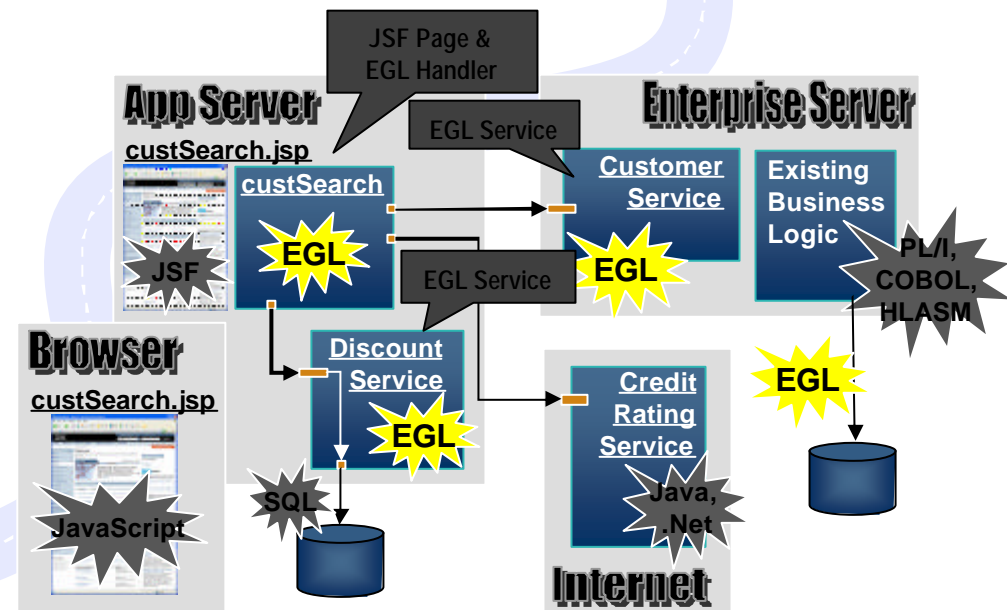
Modernize Your Skills
Customer examples

Background:

- Belgian bank and insurance company that has 50,000 employees, 12 million clients across Central Europe
- Numerous acquisitions, expect to continue
- Striving for cost reduction through synergy and integration

Solution:

- Standardize on **Rational Business Developer Extension** and **RDz** to unify application development across all platforms and transaction managers (e.g. WAS, IMS)

"We want to avoid the 'skill silos'; what we really need is a large group of general developers who should not worry about target platforms and focus on developing business components, and only a small number of technology specialists, so that we can swiftly allocate general developers to upcoming business needs. . . . EGL is helping us achieve this goal." - Lieven Gouwy, IT architect, KBC, Redmonk Podcast

Background:

- Nordisk Copyright Bureau administers the copyrights for recording and production of music on CD, DVD, film, video and the Internet on behalf of composers, lyricists and publishers

Challenge:

- Provide Web access to copyright information
- Reduce data entry workload, be more responsive to clients
- Leverage existing expertise to take advantage of the benefits offered by newer, open technologies

Solution:

- NCB worked with IBM Business Partner Xact Consulting to enable its copyright registration system for the Web. A small team of developers with limited Java experience used **EGL** to rapidly develop a Java Server Faces (JSF) and Web-based solution that integrated with NCB's existing registration system

"We wanted to implement self-service solution not only to reduce our manual data entry and costs, but also to allow our customers to get vital information that they previously did not have access to. For example, we wanted to provide them with immediate and continuous access to all of their existing copyright information." - Bjorn Skat Petersen, IT manager, NCB

Modernize Your Processes & Tools
Shared enterprise and distributed development environments

- Lower costs due to elimination of duplicate tools and processes

- Improve IT flexibility because employee skills can be leveraged across org

- Exploit single infrastructure for enterprise <u>and</u> distributed development

- Improve end-to-end communication and traceability across the entire lifecycle
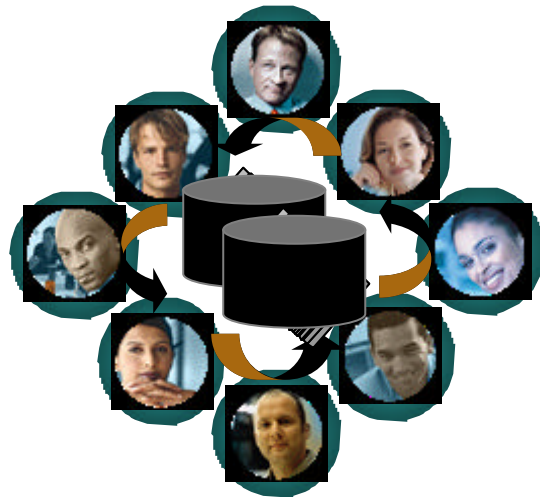
Your governance solution should cover your <u>entire</u> topology as well as the entire lifecycle for all roles.

Consolidated Development Environment

Modernize Your Processes

Centrally manage requirements, processes, activities, projects

- Manage requirements for both distributed and enterprise projects with **Rational RequisitePro**

- Provide a unified dashboard for your organization with **Rational Portfolio Manager**

- Take advantage of best practices in collaborative distributed development using **Rational Method Composer** and **Rational Unified Process for System z**

Modernize Your Team Infrastructure
Provide coordination, traceability, consistency across platforms

- Orchestrate all problem tracking and configuration management with **Rational ClearQuest**

- Manage enterprise assets with **Rational ClearCase** and/or **Source Configuration Library Manager**

- Produce traceable, automated, and cross-platform builds with **Rational Build Forge**

ClearQuest

Enterprise Lifecycle Portal

WDz, WDSC, RBDe, ISPF check in & out

ClearCase

SCLM

BuildForge Prism

BuildForge Management Console

System i

Windows, Unix, Linux, zLinux

System z

Enterprise Asset Repositories
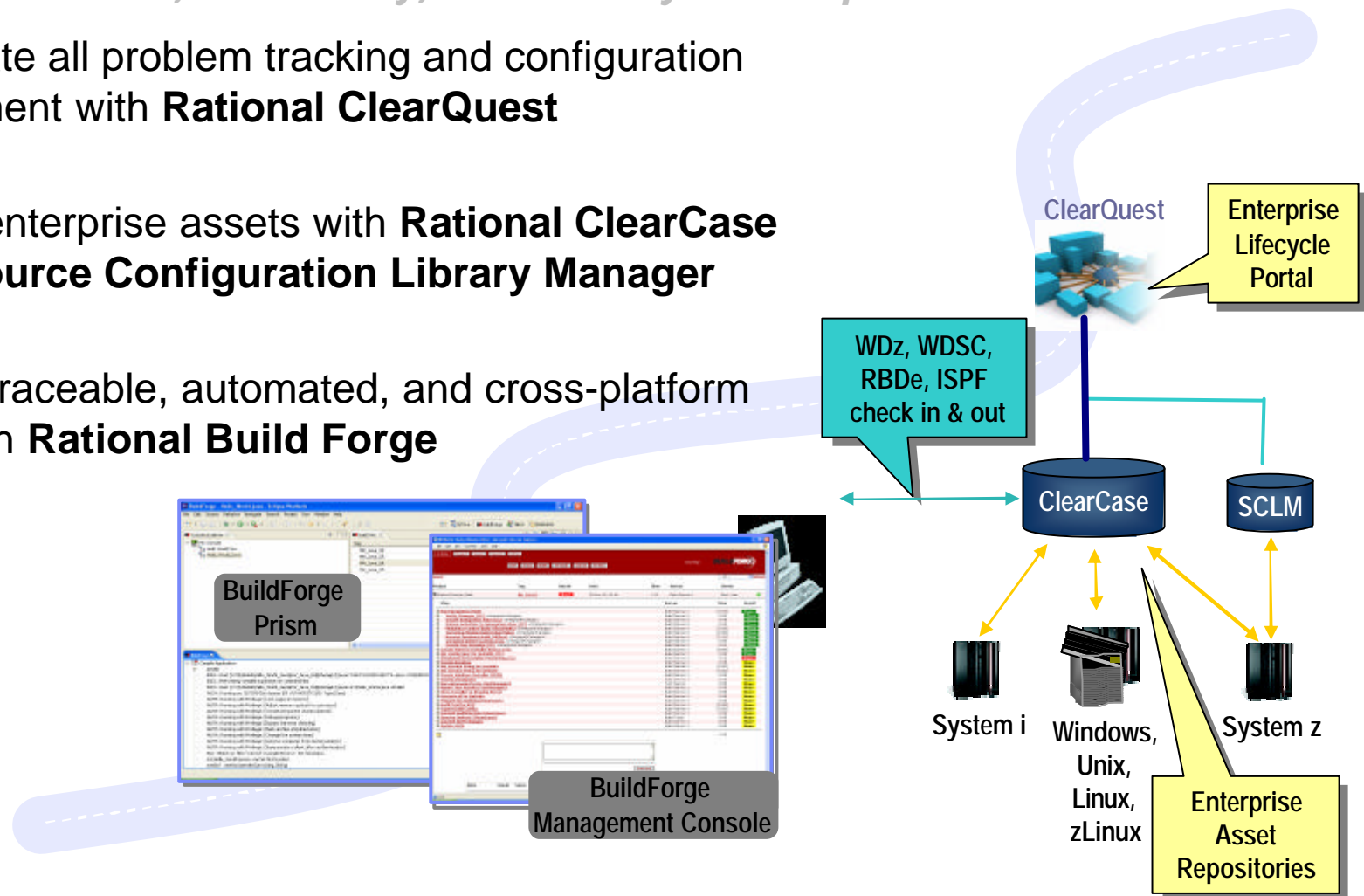
Modernize Your Processes & Tools
Customer examples

GENERALI
Assicurazioni Generali S.p.A.

Background:
- Third largest European insurance provider
- Worldwide operations and clients

Challenge:
- Spiralling maintenance and resource costs constrained the development organization
- Move to a standardized solution to improve developer productivity and flexibility for delivering software solutions

Solution:
- Highly automated cross-platform solution using **Rational ClearCase** to manage and support the software lifecycle for COBOL and Java development, from start to finish

COMMERZBANK

Background:
- German bank providing financial services to private companies and SMBs across Europe
- Leading provider of online banking services

Challenge:
- Upgrade teller workstations and ensure they continue to work with an existing third-party COBOL run-time environment

Solution:
- New application framework based on **IBM COBOL**
- **WebSphere Developer for System z** to design new COBOL and other code

"In one tool, we have a single development environment for multiple environments. I don't have to jump between different tools to do different tasks. The tool is very complete."
- Armin Schiller, transaction banking payments and cash transactions, Commerzbank AG

Modernize Development Investments
Transform your legacy applications…move to the SDP

Non IBM Technologies

HPS/**AppBuild er**

COBOL

ca **Ideal** TELON

COOL:GEN

COOL:Enterprise

Maestro

IDMS ADS/Online *

natural ADABAS

CPS

SYNON *

Microsoft **Visual Basi**

RPG

SYBASE OpenEdge *

PowerBuilder

l Technologies Informix SOFTWARE

VA Gen PACBASE

4GL

* Future Capability

Migrate from out-of-date and expensive legacy development platforms onto **IBM SDP** via **Enterprise Generation Language**

Consolidate & Advance with EGL

Process & portfolio management

Change & release management

Quality management

Architecture & construction

Integrated Requirements Management

Conversion Tooling
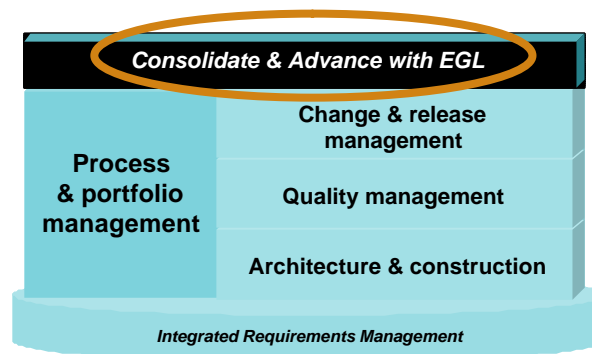
Deploy to:

**Linux
AIX
Solaris
HP-UX
System i
System z
Windows
WAS**
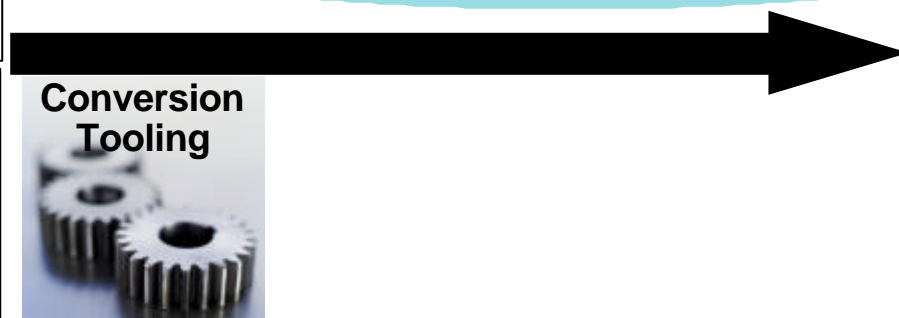
What's New?
Drive innovation in collaborative software development

Open commercial community

Created by IBM to drive innovation in collaborative software development building upon the success of Eclipse

Tooling the Eclipse way!

A project led by the team that brought us Eclipse, automating the best practices of this proven open collaborative community model

Rational. Innovation

A major investment by IBM to shape the direction of our portfolio for years to come marrying the innovation of Jazz.net with IBM's experience in collaboration and social networking technology

Jazz.net

"Simplicity through consistency, collaboration in context. Agility through transparency. Jazz is about helping people work together to delivery software more effectively." — Jazz.net

Summary

New Rational offerings driving greater visibility and collaboration in software delivery by ….

- Gaining intelligence on software asset usage and best practices to improve ROI

- Supporting corporate "business" developer communities delivery of modern application architectures

- Increasing skill sets for System z development

- Enabling agile deployment across composite application architectures

- Delivering a more open, configurable ALM platform and participation in IBM R&D in collaborative ALM technology

Helping customers optimize their investments in software delivery across organizationally diverse environments