IBM Software Group

Leverage Existing Assets: Migrating Legacy Applications to Modern Technologies

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ON DEMAND BUSINESS™

Agenda

▶ What is Application Transformation?

▶ Why choose Application Transformation for your Legacy Systems?

▶ What are the Characteristics of a Good Application Transformation Solution?

▶ Why use Rational Business Developer - EGL - as the Target for Application Transformation?

▶ Application Transformation Process Overview

▶ Summary

Key Messages

Businesses need to change to stay viable, and IT must enable this flexibility.

IT must overcome challenges:

▸ Reuse & leverage core systems

▸ Understanding the inventory of current IT assets

▸ Complex, tightly coupled architectures

▸ IT Skills lock-in

▸ Islands of development

▸ No flexibility for new investments

▸ High Cost of Maintenance

The **IBM Rational Software Delivery Platform** helps companies overcome these challenges and facilitate **enterprise application transformation & modernization**.

What is Application Transformation?

A Migration strategy/approach that utilizes (reuses) existing legacy application assets while targeting a more modern, flexible, and cost-effective software development platform
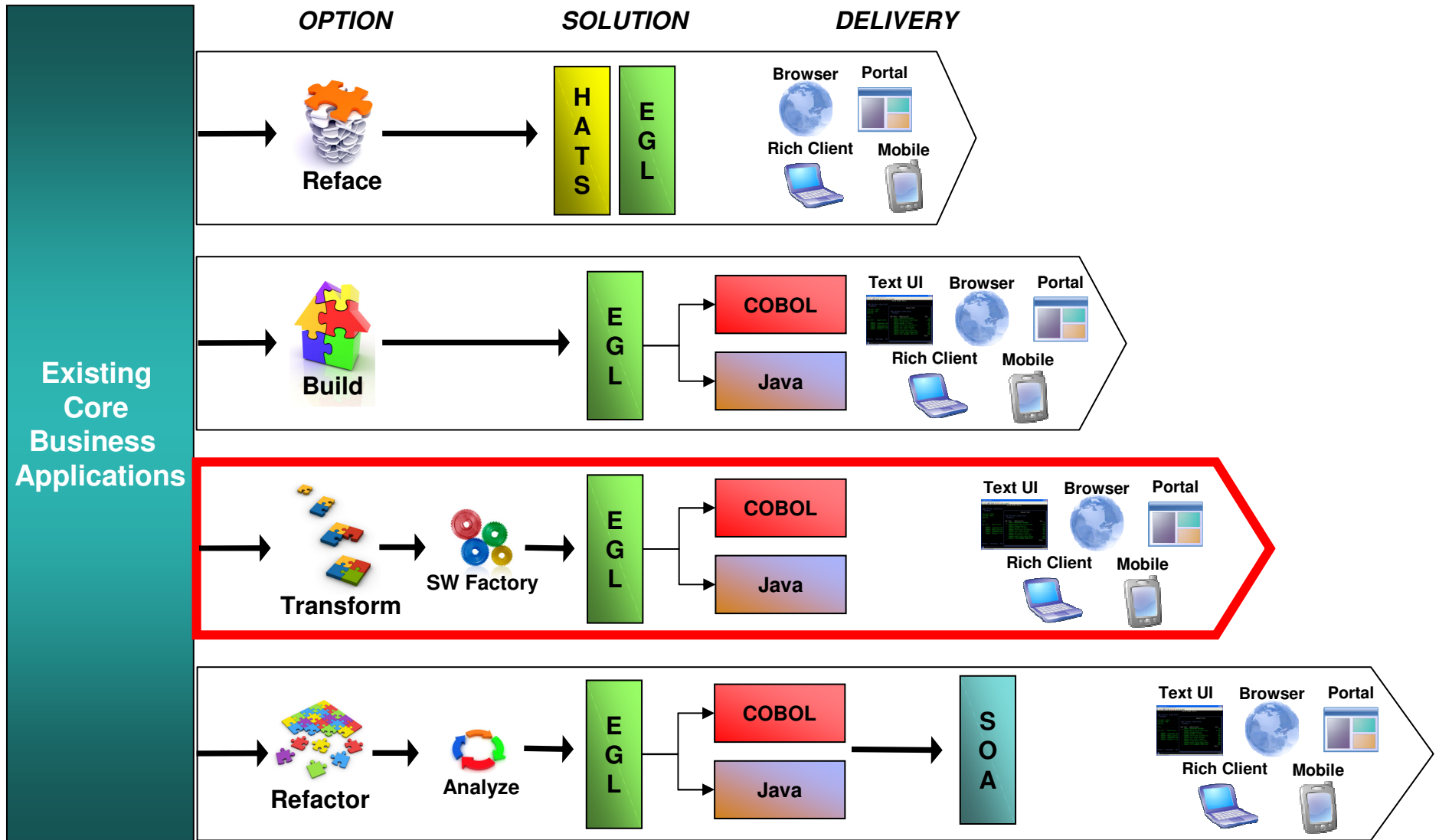
These applications are:

▶ Core business systems, critical to operations

▶ Tested, Proven and Production-ready

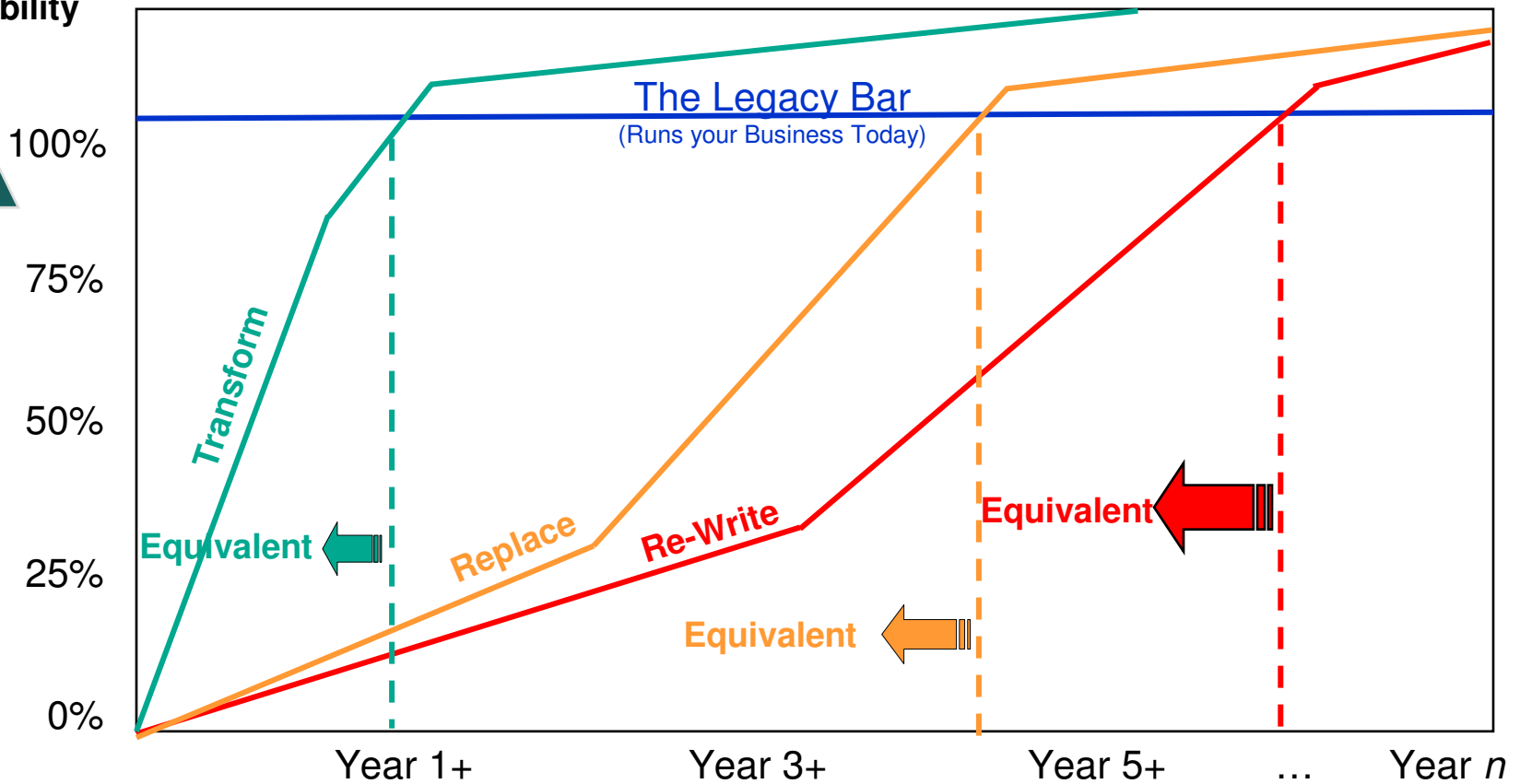▶ Have consumed enormous amounts of **Time & Treasure** to develop and in many instances to maintain

Application Transformation is a Modernization Option

Why Choose Application Transformation – Rapid Payback …

Functionality Performance and Stability

The Legacy Bar
(Runs your Business Today)

100%

75%

50%

25%

0%

Transform

Replace

Re-Write

Equivalent

Equivalent

Equivalent

Year 1+   Year 3+   Year 5+   …   Year n

6

Source:

Characteristics of Good Application Transformation Solutions

▸ Provide High-level of Automation – 90%+

▸ Clean, Concise **Mapping** of legacy language & constructs to the new target environment

▸ High Readability and Maintainability of new code

▸ Are Open (standards) & Flexible (app design)

▸ Support a Complete SDP Solution

  ▸ Providing source control, change mgmt, testing tools, requirements planning, governance …

▸ Be Highly Cost-Effective

Why Transform to Rational SDP?

- **Fastest, most cost-effective migration path off legacy code**
  - ▶ Leverage your huge investment - Time & Treasure
  - ▶ Reuse of existing, mission-critical, production tested software assets

- **Establish a Modern, More Flexible Development Platform**
  - ▶ Design and Develop the widest rage of applications possible with a single, integrated software development platform

- **Exploit a more cost-effective development environment**
  - ▶ The Rational SDP is a fraction of the cost of most legacy environments
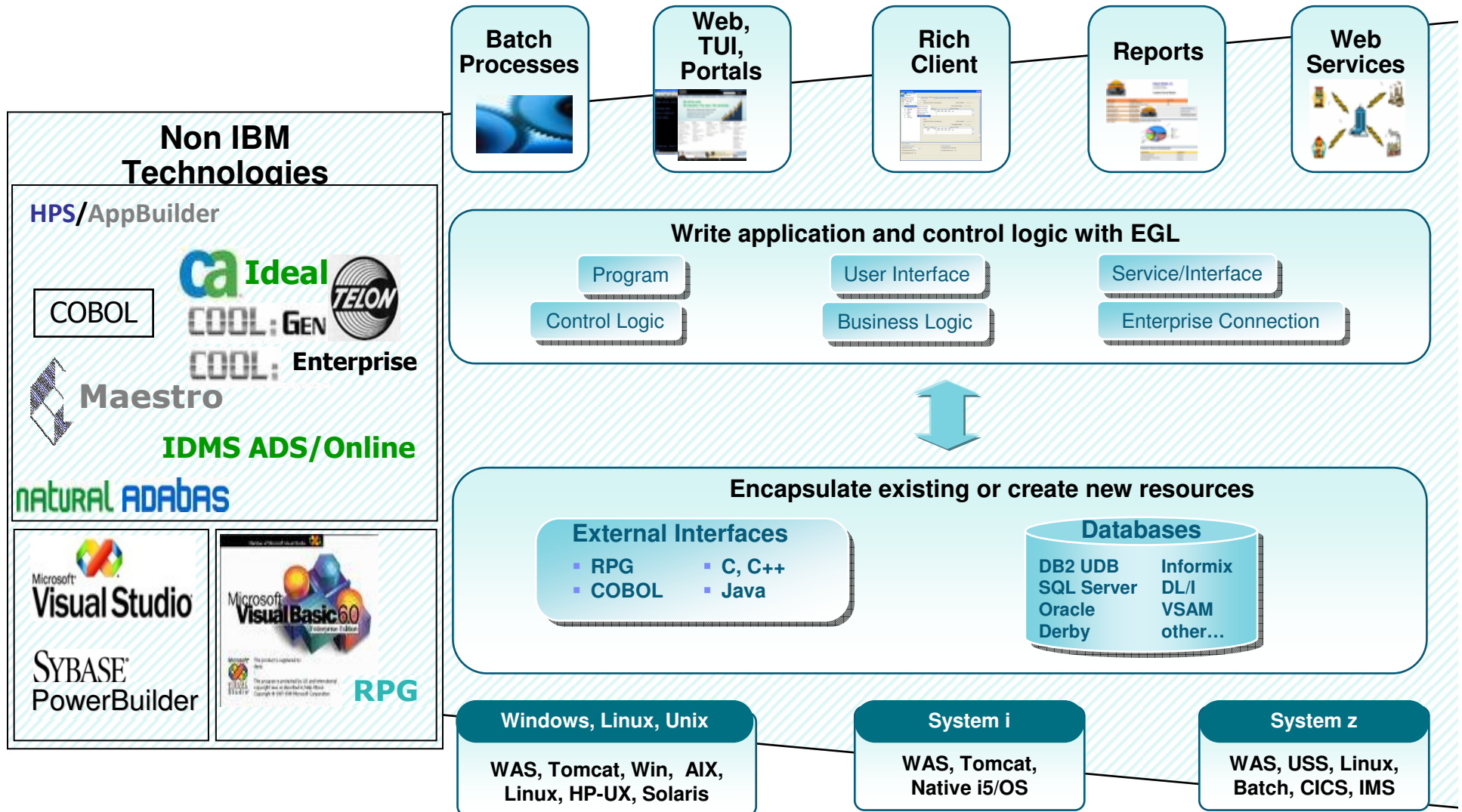
Why Use Rational Business Developer (EGL) as the Target?

- **It is the "GLUE" that allows this to happen smoothly**

- **DNA and Transformation Process is Highly Automated**

- **Mapping between EGL and most Legacy code is Excellent!**
  - ▶ **90%-100%**

- **Source Code (EGL) produced is easy to Read and highly Maintainable**

- **JumpStarts EGL Application Development**

- **Maximize on the existing in-house IT skills & domain expertise**
  - ▶ **No need for outside hiring or extensive, expensive training**
  - ▶ **Low learning curve for most programmers (weeks)**

- **Supports Open Standards, not Proprietary**

- **PROVIDES THE FIRST VIABLE BUSINESS PATH OFF LEGACY PLATFORMs**

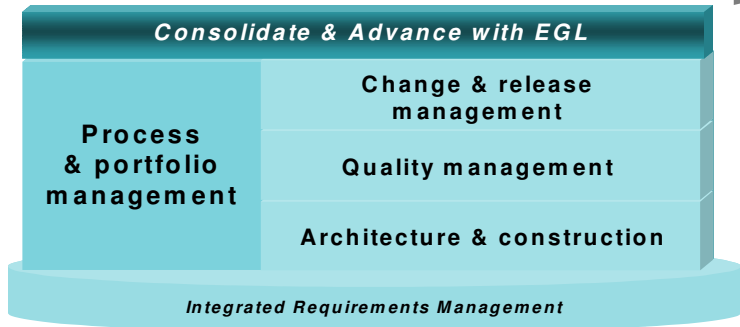# EGL as the "GLUE" for Application Transformation

Batch Processes

Web, TUI, Portals

Rich Client

Reports

Web Services

Non IBM Technologies

HPS/AppBuilder

COBOL

Ideal

TELON

COOL:Gen

COOL: **Enterprise**

Maestro

IDMS ADS/Online

natural ADABAS

Microsoft Visual Studio

Microsoft Visual Basic 6.0

SYBASE PowerBuilder

RPG

Write application and control logic with EGL

Program

User Interface

Service/Interface

Control Logic

Business Logic

Enterprise Connection

Encapsulate existing or create new resources

External Interfaces

- RPG
- C, C++
- COBOL
- Java

Databases

DB2 UDB	Informix
SQL Server	DL/I
Oracle	VSAM
Derby	other...

Windows, Linux, Unix

WAS, Tomcat, Win, AIX, Linux, HP-UX, Solaris

System i

WAS, Tomcat, Native i5/OS

System z

WAS, USS, Linux, Batch, CICS, IMS

What Can IBM Rational Transform ?
your legacy applications…

Non IBM Technologies

HPS/AppBuilder

CA Ideal   TELON
COBOL   COOL:Gen
COOL:Enterprise

Maestro

IDMS ADS/Online *

natural ADABAS   **CSP**

SYNON *

Microsoft
Visual Basi

RPG   SYBASE   Progress OpenEdge *
PowerBuilder *

IBM Technologies

VA Gen   Informix I4GL SOFTWARE

chef de projet
PACBASE

* Future Capability

Rational Migration Extension for Natural & Rational Migration Extension for IBM i – GA 6/2008 & 9/2008

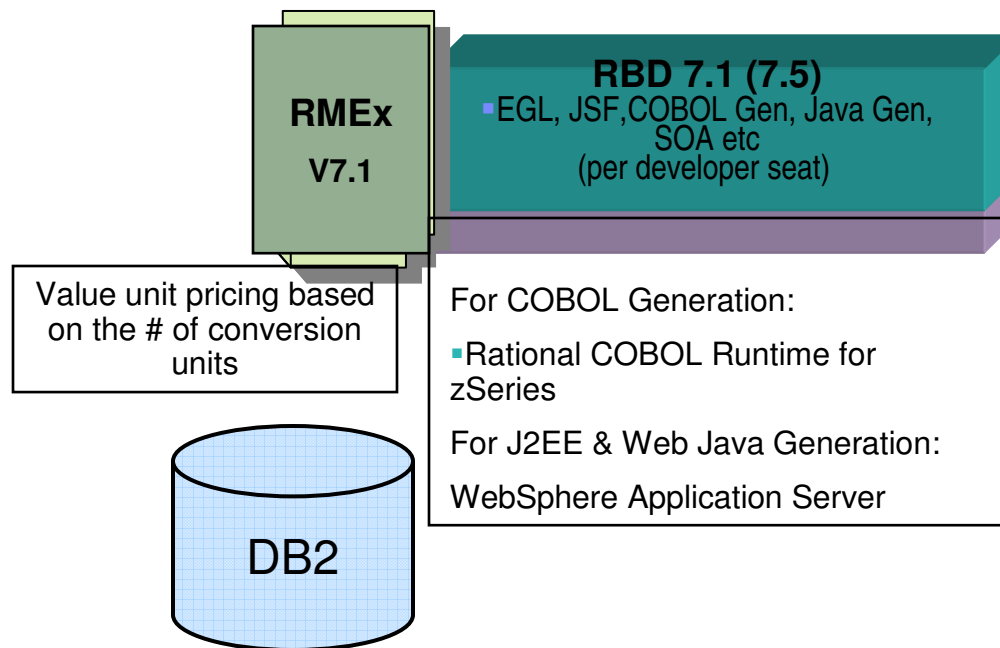**More Extensions are Planned for 2009**

Conversion Tooling

Consolidate & Advance with EGL

Change & release management

Process & portfolio management

Quality management

Architecture & construction

Integrated Requirements Management

Deploy to:

Linux
AIX
Solaris
HP-UX
System i
System z
Windows
WAS

Products Required for Migration

Rational Business Developer (RBD)
Rational Migration Extension (RMEx)

RMEx

V7.1

RBD 7.1 (7.5)
▪EGL, JSF,COBOL Gen, Java Gen, SOA etc
(per developer seat)

Value unit pricing based on the # of conversion units

For COBOL Generation:

▪Rational COBOL Runtime for zSeries

For J2EE & Web Java Generation:

WebSphere Application Server

DB2

Optional:

WebSphere, MQ, Rational ClearCase and Rational Portfolio

Migrated Code comparison ex. - RPG vs. EGL

High Degree of Readability

Limited Code Expansion

Easily Maintained

RMEn - Migrated Code comparison – Natural vs. EGL
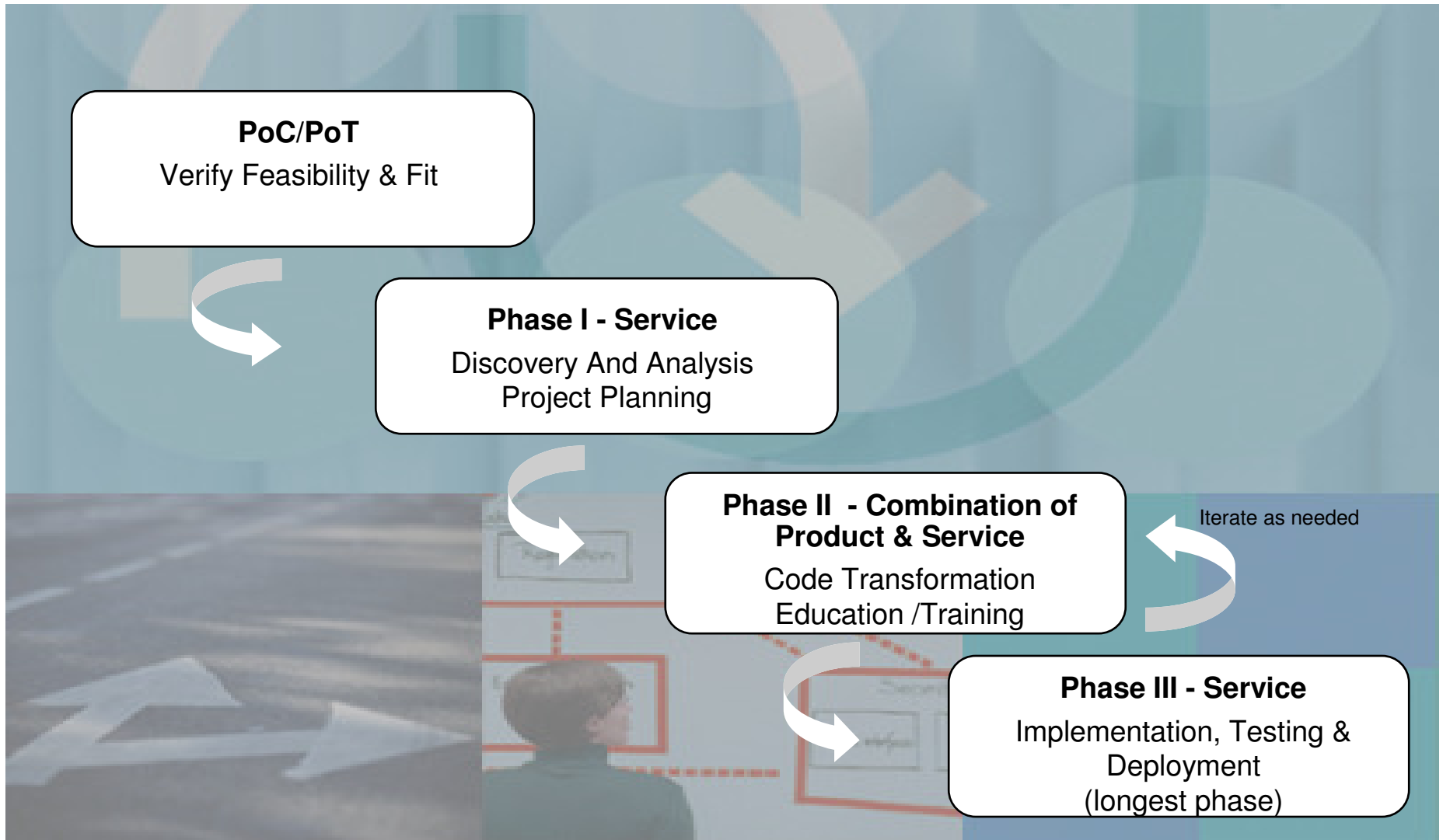
```
IF ANA-VIEW.ACCOUNT-NUMBER EQ #TE-REC.#ACCOUNT-
NUMBER AND
0570        ANA-VIEW.N-A-TYPE(!) EQ '01'
0580        MOVE ANA-VIEW.FULL-NAME-1      TO #ACCOUNT-
NAME
0590      END-IF
0600    END-READ
0610  END-IF
0620 *
0630  IF #TE-REC.#ACCOUNT-NUMBER GE '07AAAAAA'  /* ICN
16009
0640    RESET #ACCOUNT-NAME
0650  END-IF
0660 *
0670  WRITE WORK FILE 2 #TE-REC          /* NNP 01
0680              #ACCOUNT-NAME
0690  ADD 1 TO #COUNT-TE-WRITE
0700 *
0710 * ICN 17891 ENDS.
0720 END-WORK
0730 *
```

```
if(local.ana_View.account_Number == Te15l00g.$te_Rec.$account_Number and
        ("01" in local.ana_View.n_A_Type))
    local.$account_Name = local.ana_View.full_Name_1;
  end
 end //while (Read Logical Database)

//*
// ICN 16009
if(Te15l00g.$te_Rec.$account_Number >= "07AAAAAA")
  local.$account_Name = "";

//*
// NNP 01
workFile2.workFileRecord1 = Te15l00g.$te_Rec;
workFile2.workFileRecord2 = local.$account_Name;
          kFile2;
 local.$count_Te_Write = local.$count_Te_Write + 1;
  get next workFile1;
 end // While Read Work
//*
//ICN 17891 ENDS.
//*
```

High Degree of Readability

Limited Code Expansion

Easily Maintained

Application Transformation Project Scope

- DNA (Discovery aNd Analysis) of existing environment
  - ▶ Complete Inventory, Audit, Analysis and Usage statistics and much more on Existing code base
  - ▶ Allows us to enter the transformations with "Eyes wide open"
  - ▶ Project Planning

- Conversion / Transformation
  - ▶ 90% + automated conversion of old code base to Rational Business Developer (EGL)
    - UIs considerations as paramount (TUI, JSF/Web, RUI)
  - ▶ Both source code transformation and data base normalization to DB2

- Additional Services
  - Code Remediation is normally required
  - UI rearchitecture for JSF/Web & RUI
  - Testing
  - Implementation
  - Education & Knowledge Transfer
  - JCL and Batch Job creation

Application Transformation Process

PoC/PoT

Verify Feasibility & Fit

Phase I - Service

Discovery And Analysis
Project Planning

Phase II - Combination of Product & Service

Code Transformation
Education /Training

Iterate as needed

Phase III - Service

Implementation, Testing &
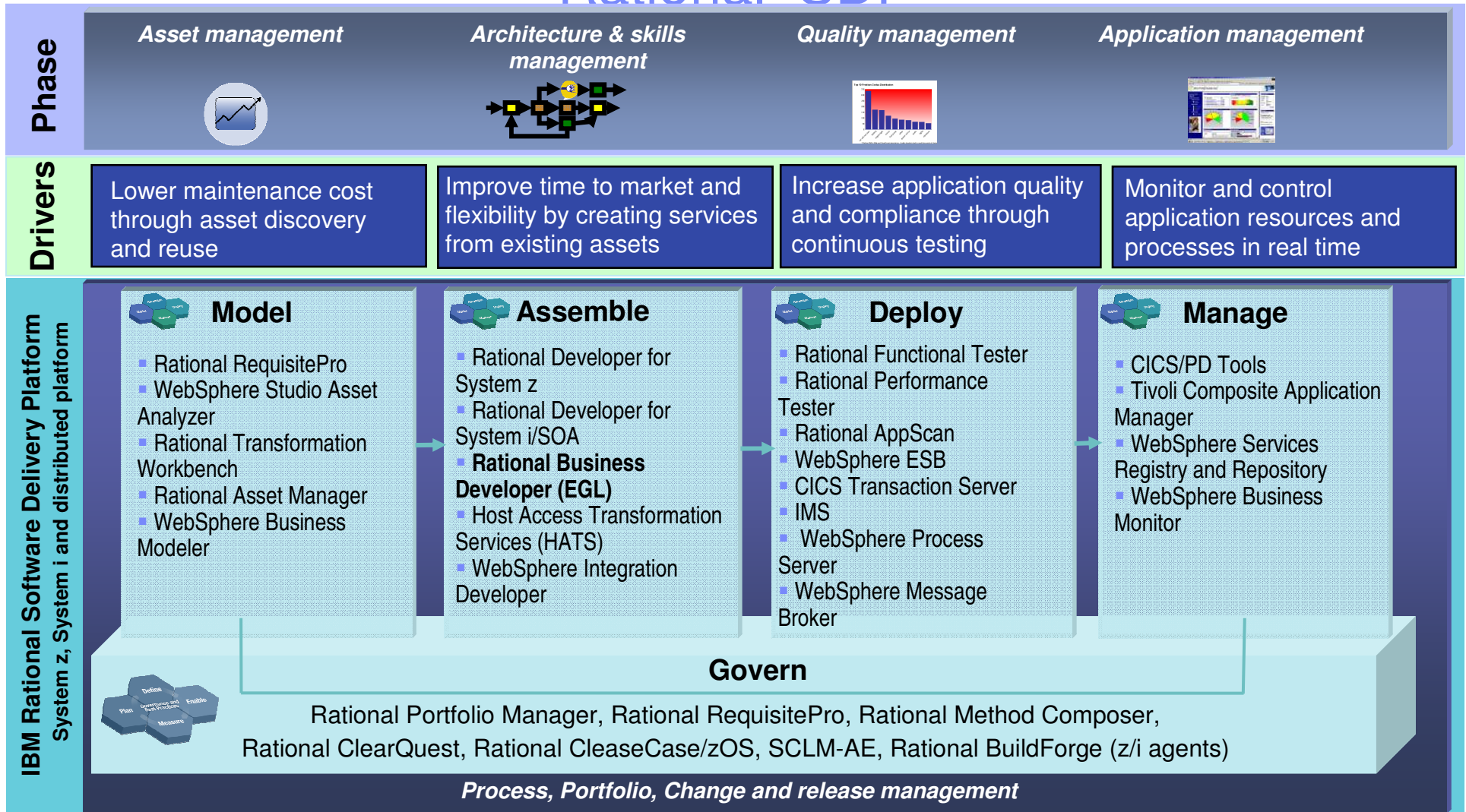Deployment
(longest phase)

IBM's Investment in RBD/EGL is Core to this Solution

- **A strategic part of IBM's Software Delivery Platform**
  - ▶ Core strategy for modernizing 7000 System z and 200,000 System i customers
    - ▪ Part of System i Marketing materials
  - ▶ IBM's only enterprise class "cross platform" e2e solution
  - ▶ Under Industry Standardization process (OMG)
  - ▶ RBD V7.1 is one of the designated key products for Rational in 2008 (RBD v7.5 fall 2008)
    - ▪ Additional Marketing efforts
    - ▪ Additional Resources (technical and sales)

- **Large IBM install base of stabilized legacy 4GL**
  - ▶ CSP, VisualGen, VisualAge Generator Customers (over 3,000)
  - ▶ Natural/ADABAS, CA Cool:Gen, Maestro, COBOL, RPG …………
    - ▪ Include very large and critical IBM accounts with significant investment

- **Strategic Migration path for legacy application development environments**

Transformed Apps are Fully Integrated into the Rational SDP

Phase	Asset management	Architecture & skills management	Quality management	Application management

Drivers	Lower maintenance cost through asset discovery and reuse	Improve time to market and flexibility by creating services from existing assets	Increase application quality and compliance through continuous testing	Monitor and control application resources and processes in real time

IBM Rational Software Delivery Platform
System z, System i and distributed platform

Model
- Rational RequisitePro
- WebSphere Studio Asset Analyzer
- Rational Transformation Workbench
- Rational Asset Manager
- WebSphere Business Modeler

Assemble
- Rational Developer for System z
- Rational Developer for System i/SOA
- **Rational Business Developer (EGL)**
- Host Access Transformation Services (HATS)
- WebSphere Integration Developer

Deploy
- Rational Functional Tester
- Rational Performance Tester
- Rational AppScan
- WebSphere ESB
- CICS Transaction Server
- IMS
- WebSphere Process Server
- WebSphere Message Broker

Manage
- CICS/PD Tools
- Tivoli Composite Application Manager
- WebSphere Services Registry and Repository
- WebSphere Business Monitor

Govern
Rational Portfolio Manager, Rational RequisitePro, Rational Method Composer, Rational ClearQuest, Rational CleaseCase/zOS, SCLM-AE, Rational BuildForge (z/i agents)

Process, Portfolio, Change and release management

Factors for Success

- **In-depth Analysis**

- **Committed to Success**
  - ▶ **Working in a Partnership with IBM & it's Business Partners**

- **Project Management**

- **Customer Resources**

- **Rational Software Development Platform Strategy**

Summary

- Enterprise Application Transformation of Legacy applications is <u>not trivial</u>, but with the right amount of **Time, Treasure, Talent and Technology** it is a **Viable, Cost-Effective** approach for modernizing aging SAG application technologies

  - ✓ Preserve your huge investment in these systems
  - ✓ Maintain the full functionality of these systems
  - ✓ Replace the part of the system that "inhibits"
  - ✓ Allows for **Reuse of proven functionality** extracted from tested, production-ready systems
  - ✓ Enables the **Redeployment of business-critical, stable functionality** as Services (SOA)

- Rational Business Developer (EGL) makes this possible

  - ✓ High level of language <u>compatibility, readability and maintainability of converted code</u>
  - ✓ Provides maximum deployment flexibility and use of IT resources with Maximum Leverage of existing IT staff with minimal training expense

- **More cost-effective than Replacement or Rewrite options**

RBD (EGL) Momentum
A growing network of EGL Business Partners world-wide …