



IBM Software Group

# Rational Migration Extensions (RME) and EGL

*Jun 17<sup>th</sup> 2010*



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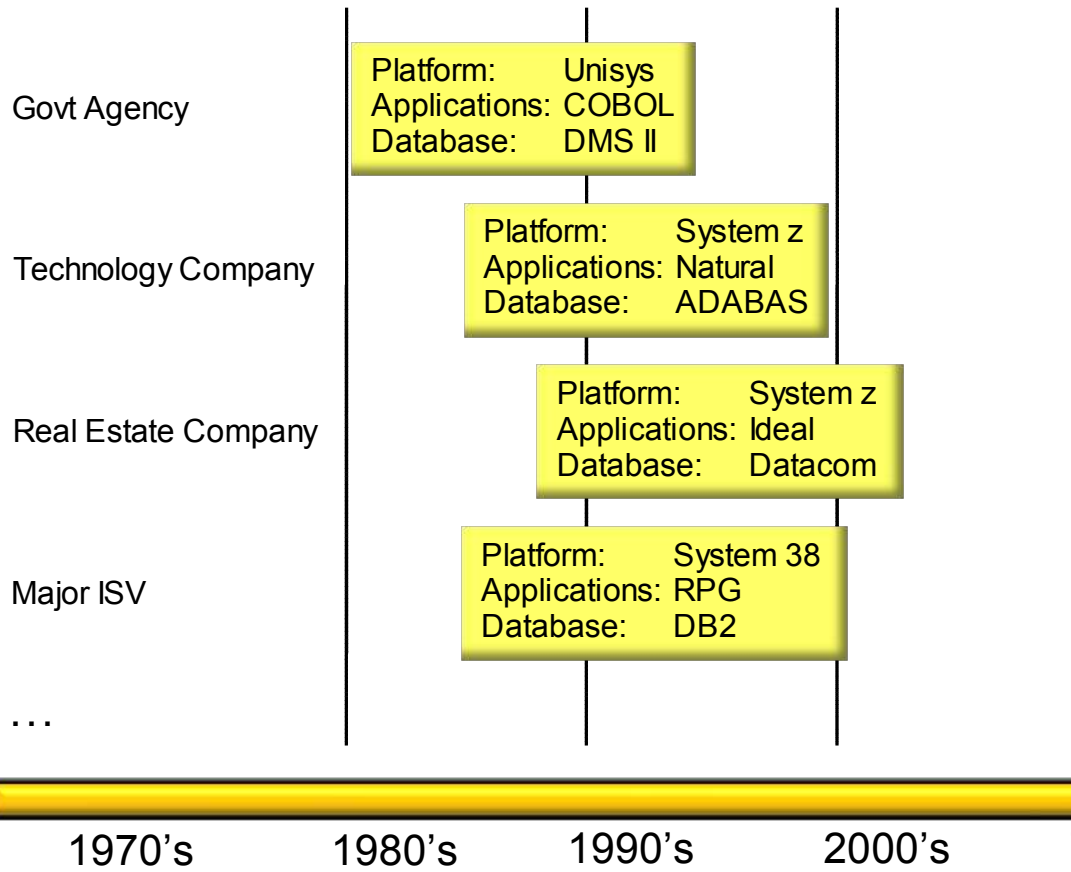
# Agenda

- Rational Migration Extension(s)
- Modernize processes with EGL
- Deliver productivity improvements and broaden access with Rich UI
- EGL Open and EGL Community Edition
- EGL Café and EGL Distance Learning

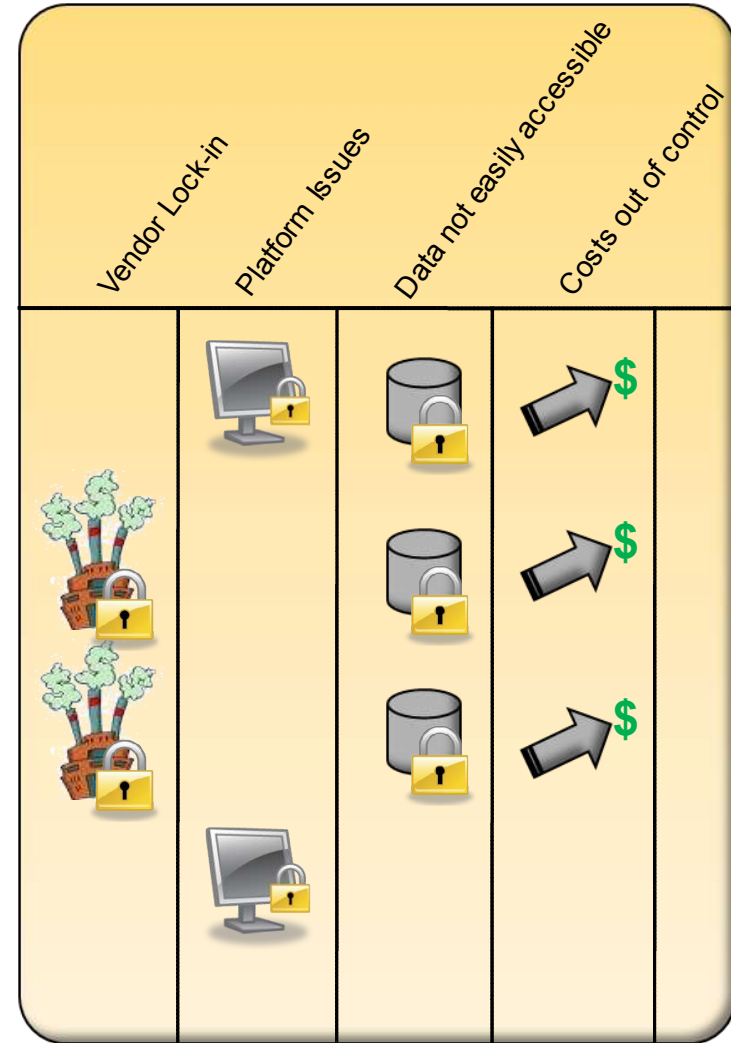


# Identifying the business problems

- Existing applications have “run the business” for years
- Decisions made decades ago may not be the right ones for today



# Business Problems



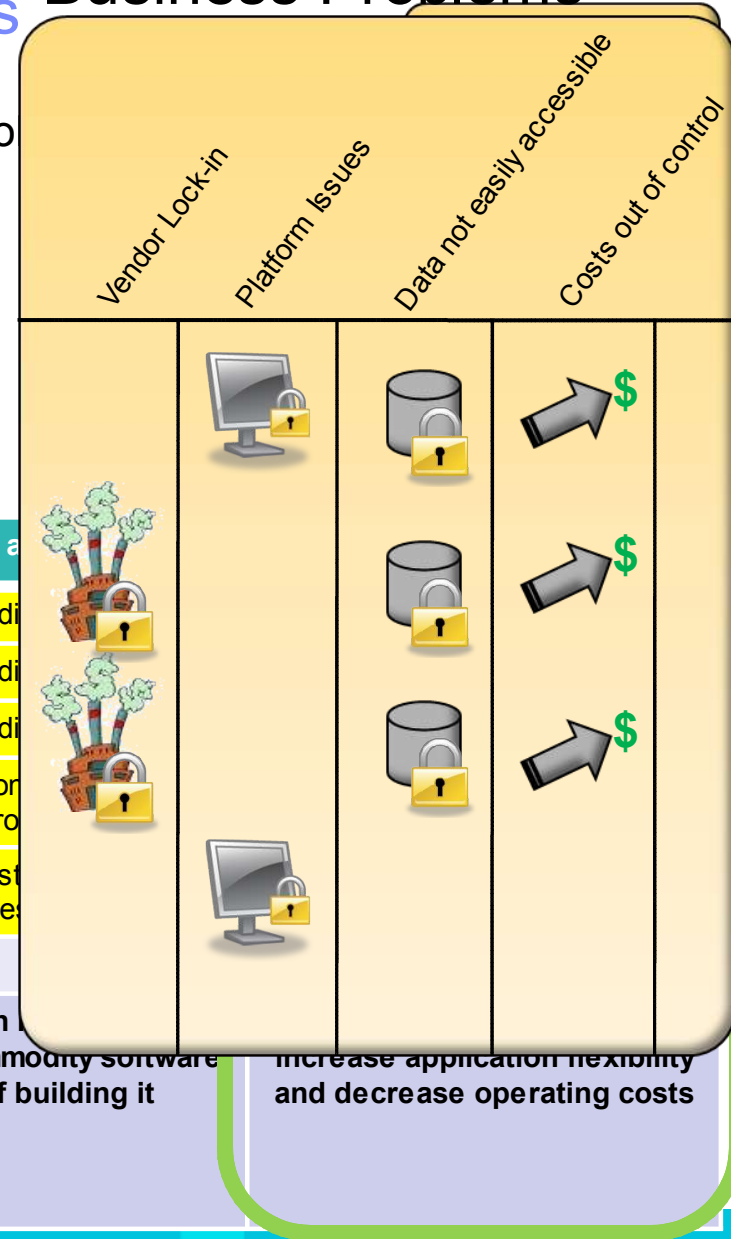
# Possible solutions to identified problems

## Business Problems

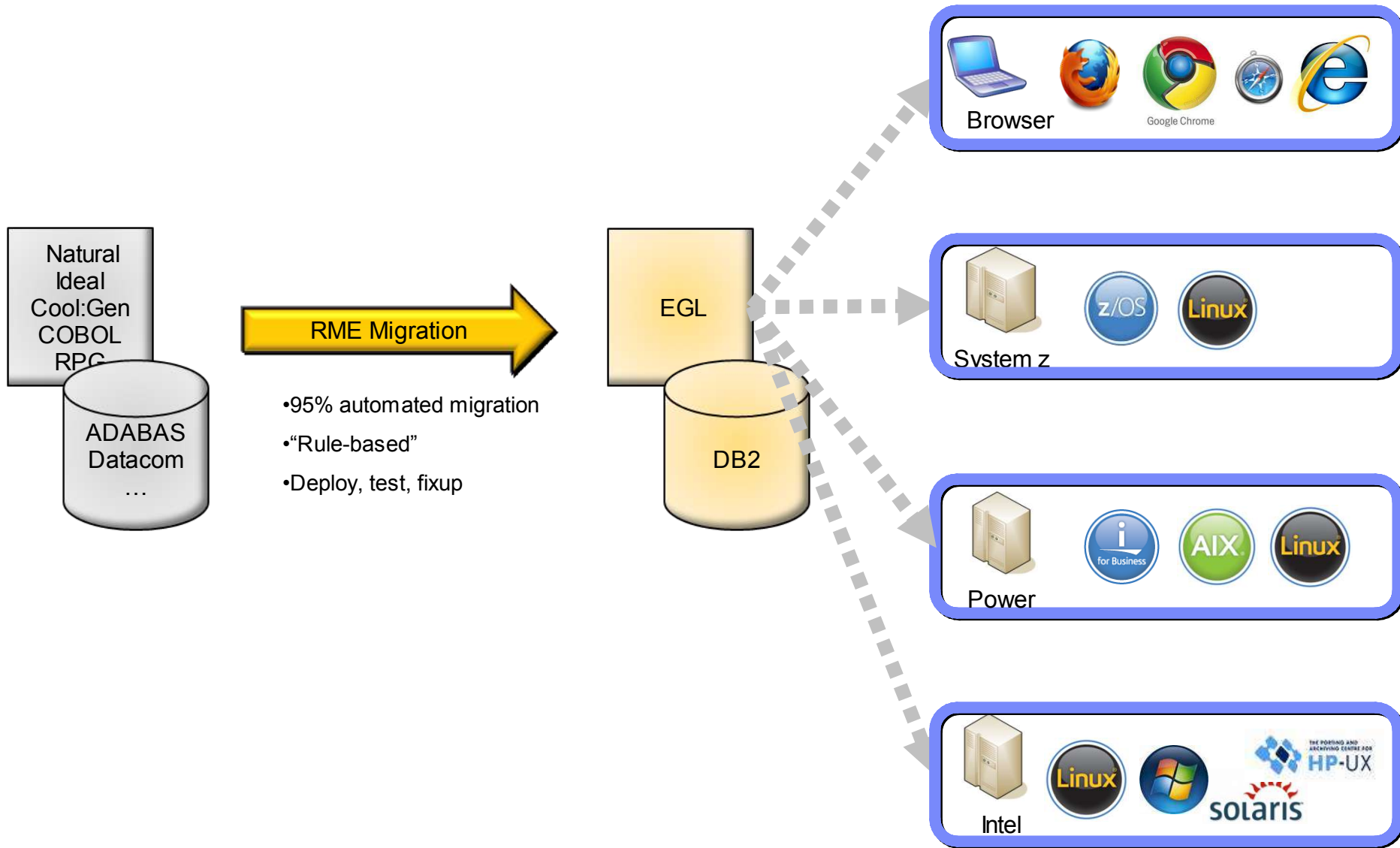
Modernization options for addressing identified business pro

- Rewrite
- Purchase a packaged application (and customize)
- Migrate

Criteria	Rewrite	Packaged a
Time to Market	Slow	Medi
Cost	High (\$5 - \$10/LOC)	Medi
Risk	High	Medi
Ability to make functional improvements	High	Either application or business pro
Ability to make Business process improvements	High	Business must proces
<b>Key Business Drivers</b>	<b>Current application doesn't meet business needs; Desire custom application that exploits defined architectures and competitive advantages</b>	<b>Reduction in Leverage commodity software instead of building it</b>



# What is an automated migration?



# Why EGL?

## Platform Flexibility

Delivers maximum platform and runtime independence



## Skills

Allows developers to focus on business problems, not technology problems



## Productivity

Allows developers to focus on business problems, not technology problems



## Modern

Eclipse-based tools simplify development of Web 2.0 style applications and Web services

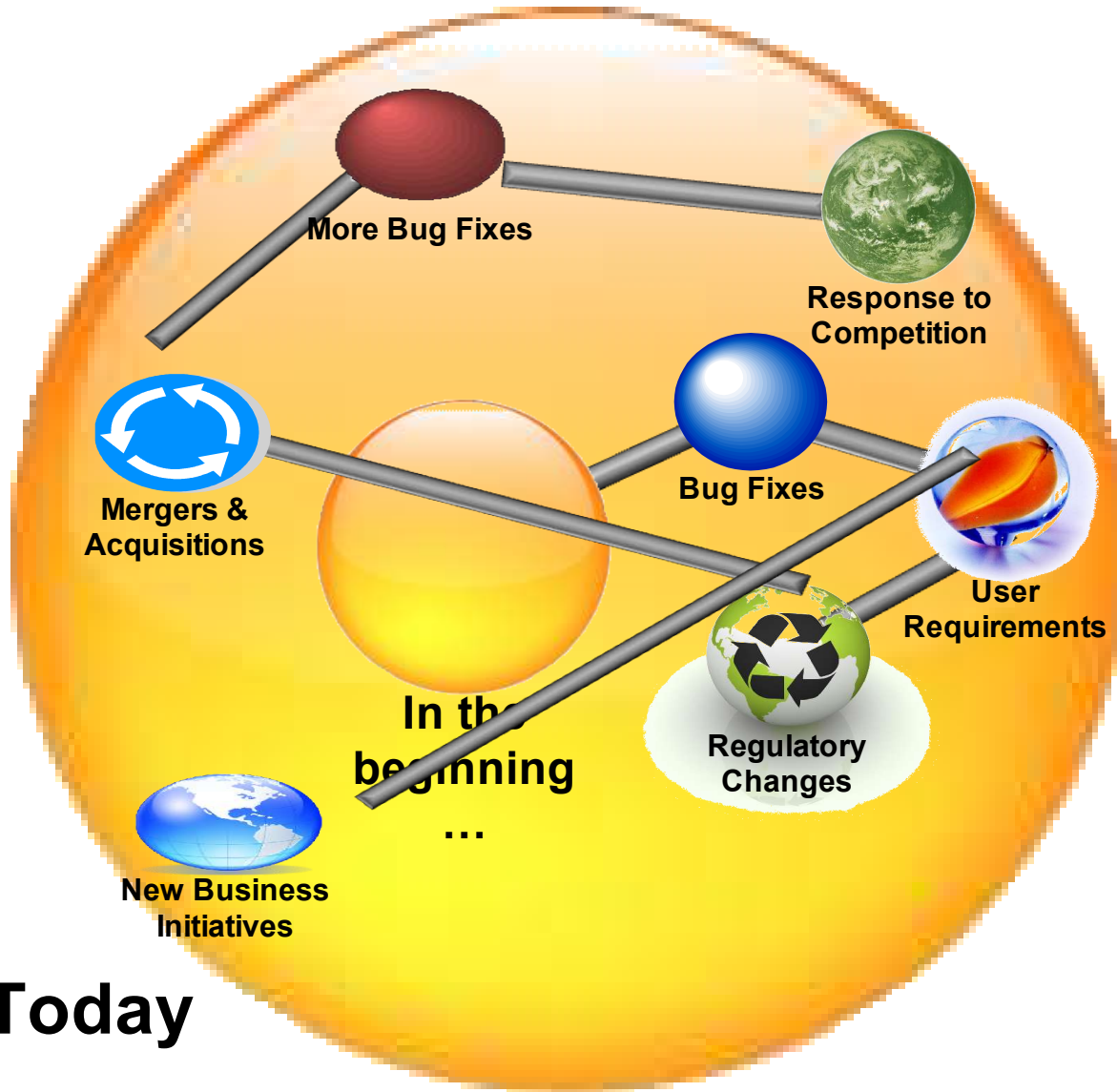


## Adaptability

Delivers a modern language that evolves as technologies and runtimes change



# Why automated migration? Application capability



- *Bug fixes*
- *User requirements*
- *Regulatory changes*
- *Mergers, acquisition*
- *More Bug Fixes*
- *Response to competition*
- *New business initiatives*

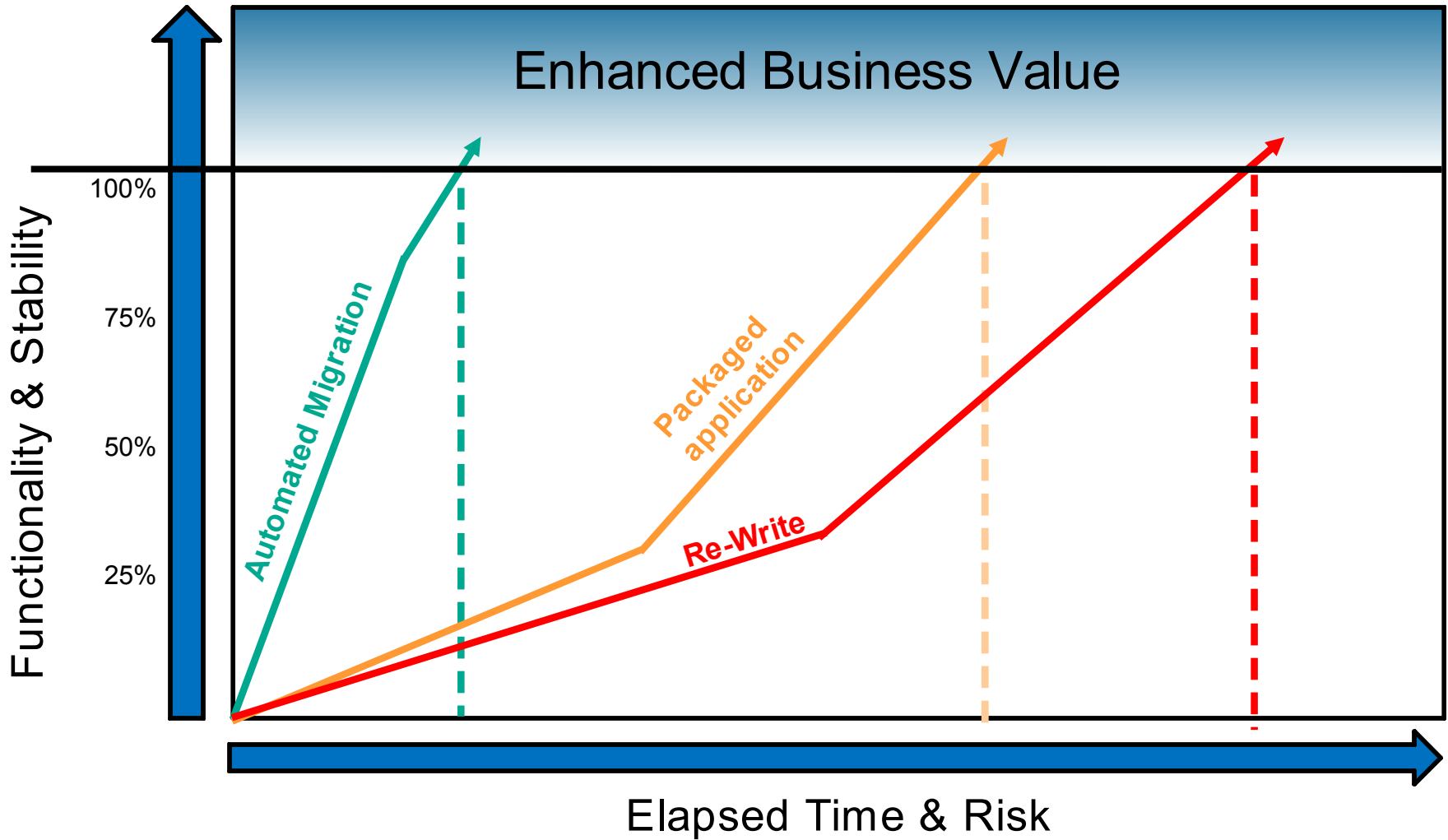
Your application today reflects years of evolution and has likely achieved world class stability

**Today**





# Why automated migration? Risk and Time



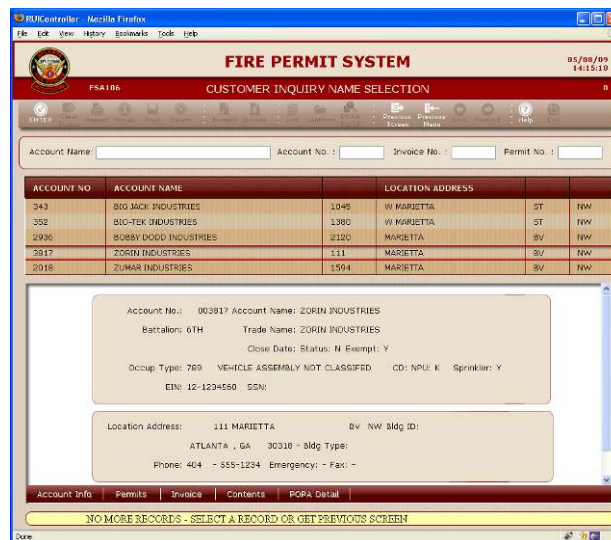


# Why automated migration? Improved UI

## Original Screens



## Standard Transformation



- ✓ One to one screen to RUI
- ✓ UI patterns mapping (list, detail, headers, message, etc)

## Enhanced Transformation



- ✓ Combined UIs, improved flow, resizable panels, etc
- ✓ Combo boxes, radio buttons, date pickers, tabs, etc
- ✓ Drag & drop
- ✓ Mash-ups and integration with other systems



# Why automated migration? Solves business problems

## Business Problems

...

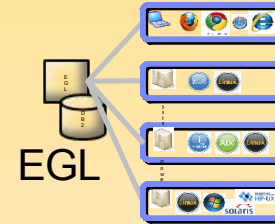
## Rational Migration Solutions



**Vendor Lock-in**



**Platform Issues**



**Data not easily accessible**



Relational

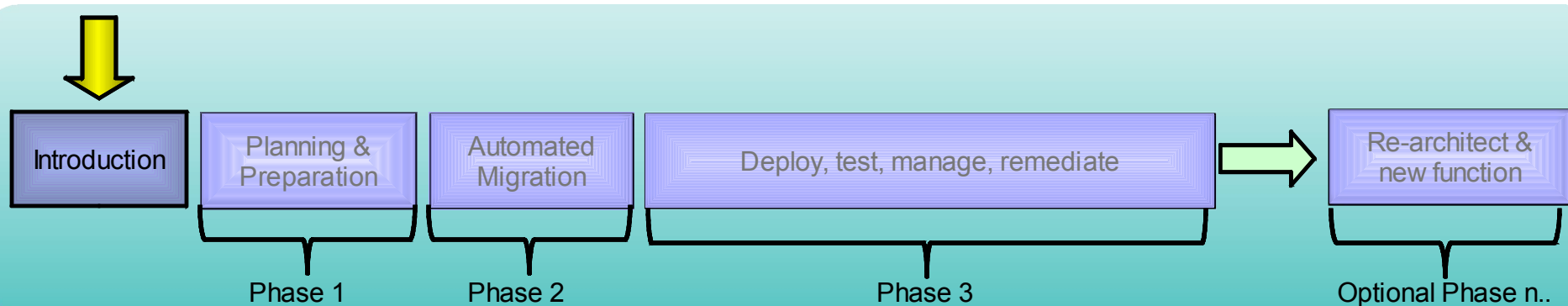


**Costs out of control**



## Introductory Activities

- Provide an executive overview of Rational transformation solutions (RME)
- Perform a business level interview with the customer to gather information
- Perform a light application analysis to understand scope

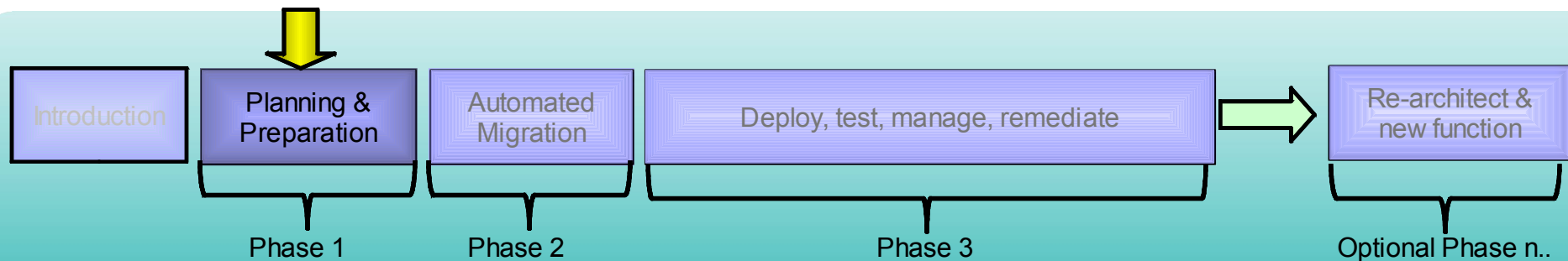


# Planning, Preparation & Deep Analysis

- Customer provides application code for automated deep analysis
- IBM RME team
  - Conducts architectural interviews with customer team
  - Conducts project management interviews with customer team
  - Identifies migration rules customization that might be needed
  - Presents the project plan and proposal
- Customer deliverables
  - Analysis reports
  - Baseline migration code is viewable
  - Project plan
  - Proposal with complete project costs for Phases 2 & 3

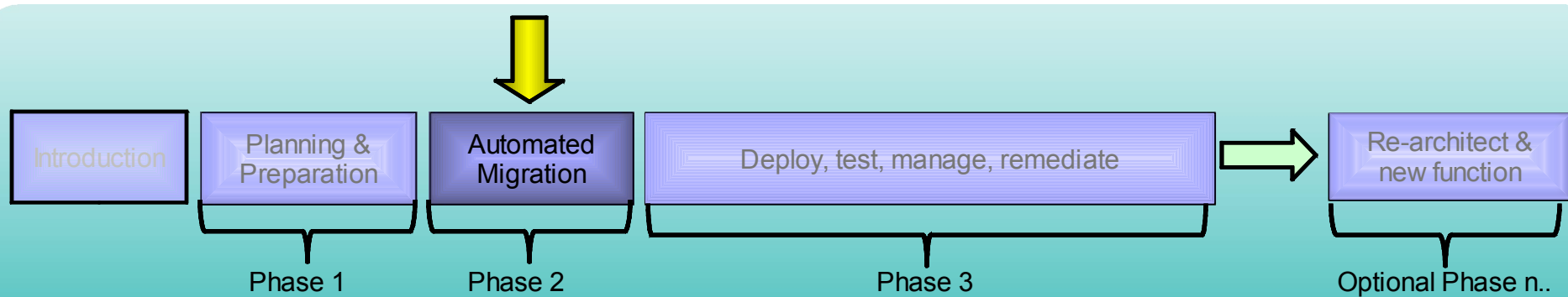
## Optional Pilot

- Purpose: to demonstrate converted code executing in the EGL debugging environment
- Constraints: Approximately 10k LOC



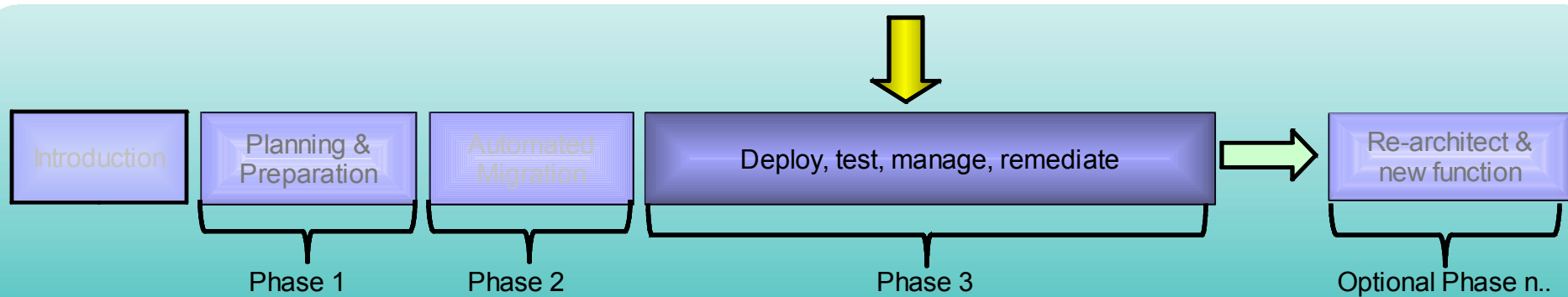
# Automated Migration

- Customer provides application code
- Code conversion (typically done off-site)
- Deliver training
- Configure customer environment
- Deliver migrated EGL and any related database schemas to customer



# Deploy, Test, Manage, and Remediate

- Deploy
- Test
- Project Management
- Correct any remaining problems
- Performance Testing
- Promotion to Production



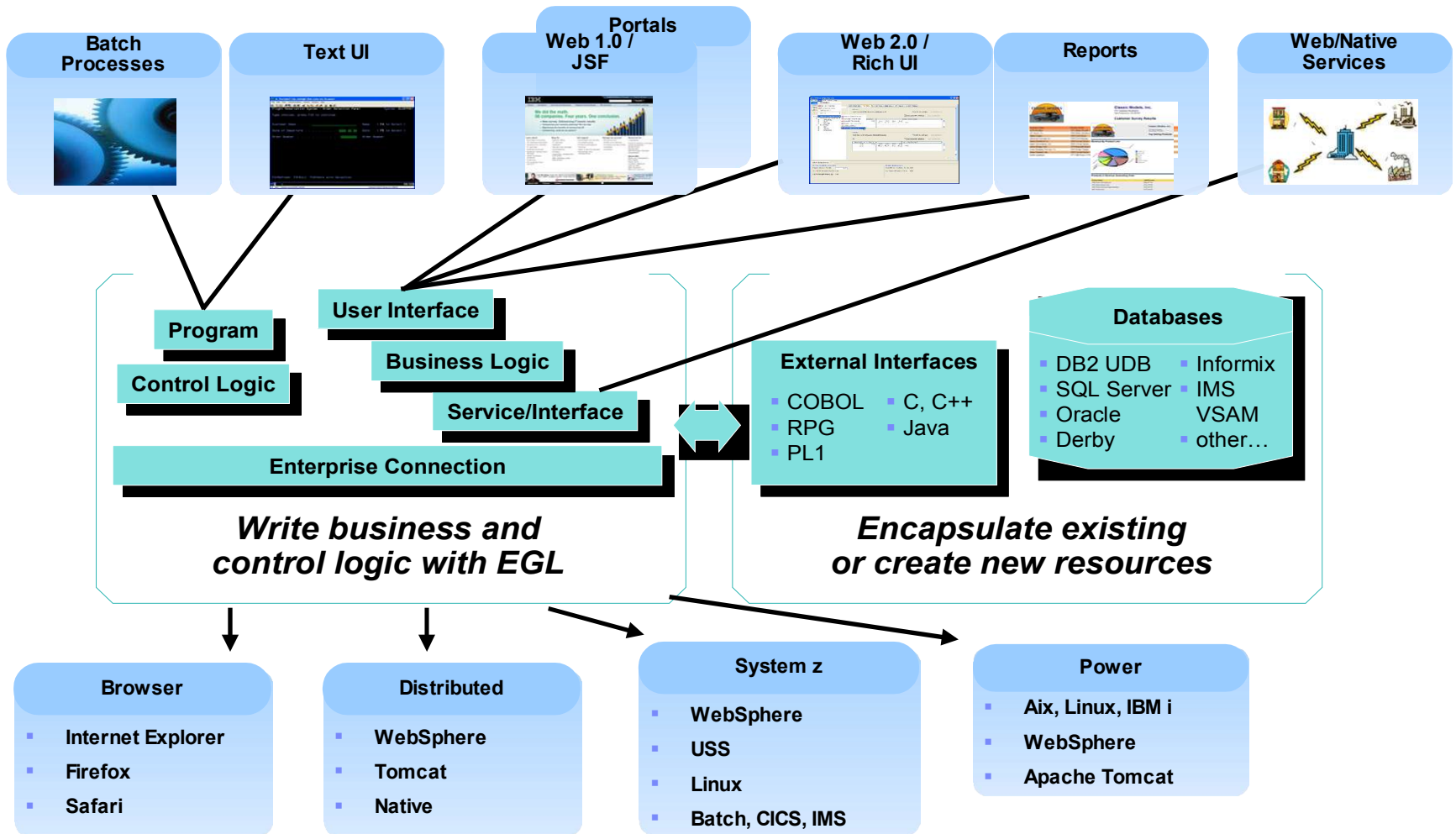
## Simplify Innovation with EGL

- EGL, IBM's newest business language, is a higher-level programming language designed for simplifying development of modern business applications
  - ▶ Supports development of server and client side logic in a single language
    - Code deploys natively throughout the enterprise as Java, JavaScript, or COBOL
  - ▶ Shields developers from the complexities of runtime environments
    - Allows developers to focus on business needs
  - ▶ Ideal for all types of developers
- EGL is modern
  - ▶ Web 2.0 and SOA built-in
  - ▶ Eclipse and Jazz based tools
- EGL is an excellent target migration language





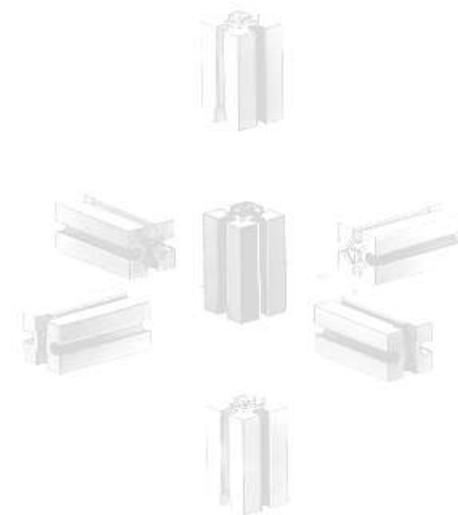
# Respond to Broadest Application Needs



# EGL Language Parts

Category	Part Type
<b>Data Parts (Model)</b>	Primitive Data Types Data Items Records
<b>User Interfaces (View)</b>	Text UI Forms Rich UI Handlers
<b>Business processing (Controller)</b>	Services Functions Programs
<b>Architecture and infrastructure</b>	Libraries System Libraries

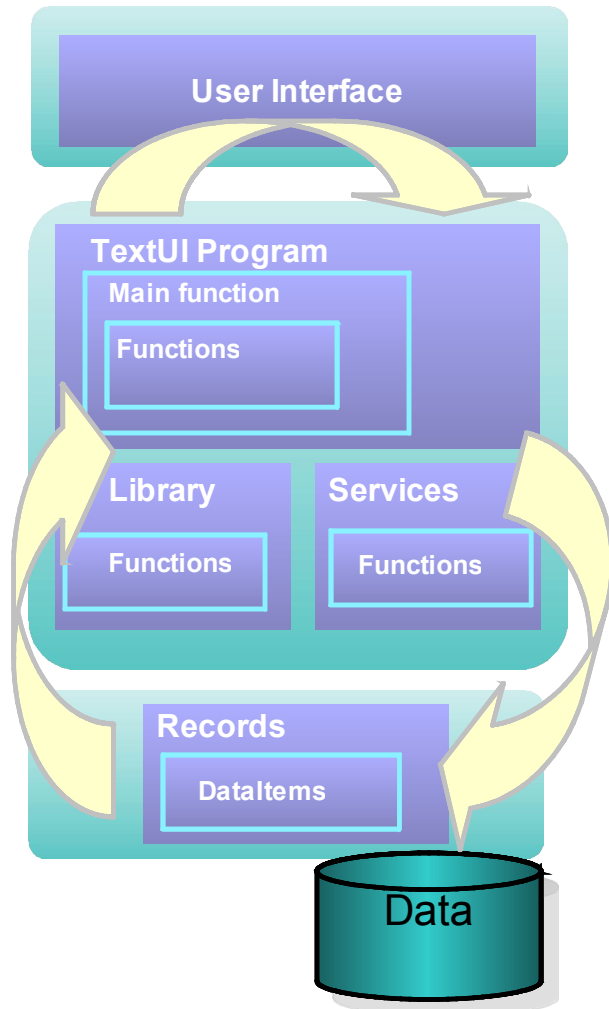
EGL supports all of the industry-standard data types, logic constructs, and functionality you need for your applications (legacy and leading-edge).



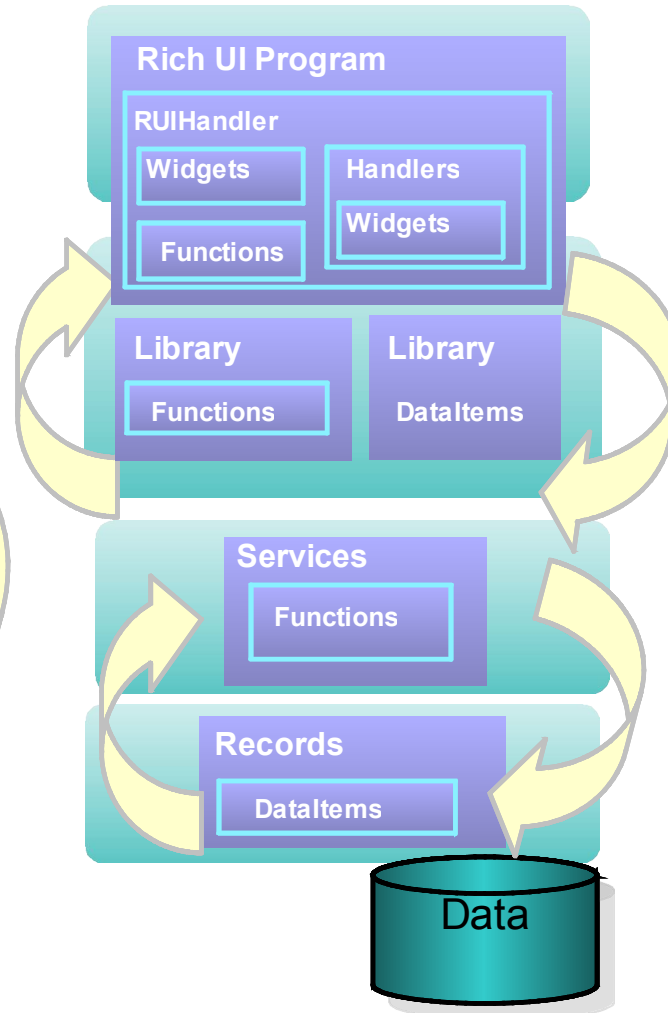
Parts are a term we use to describe various atomic “standalone” EGL language constructs

# Typical EGL Applications

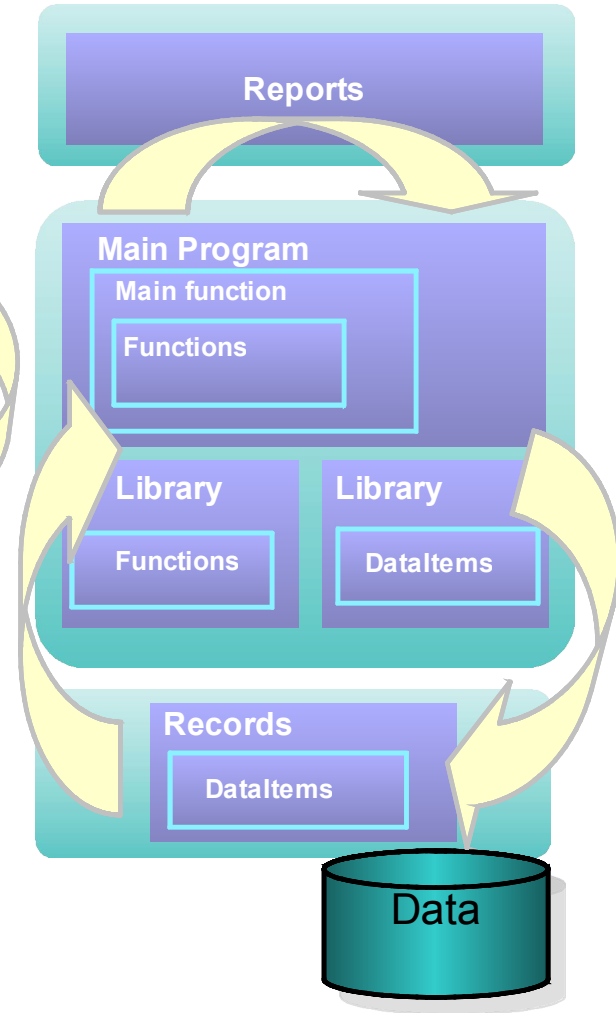
### Text UI



### Rich UI

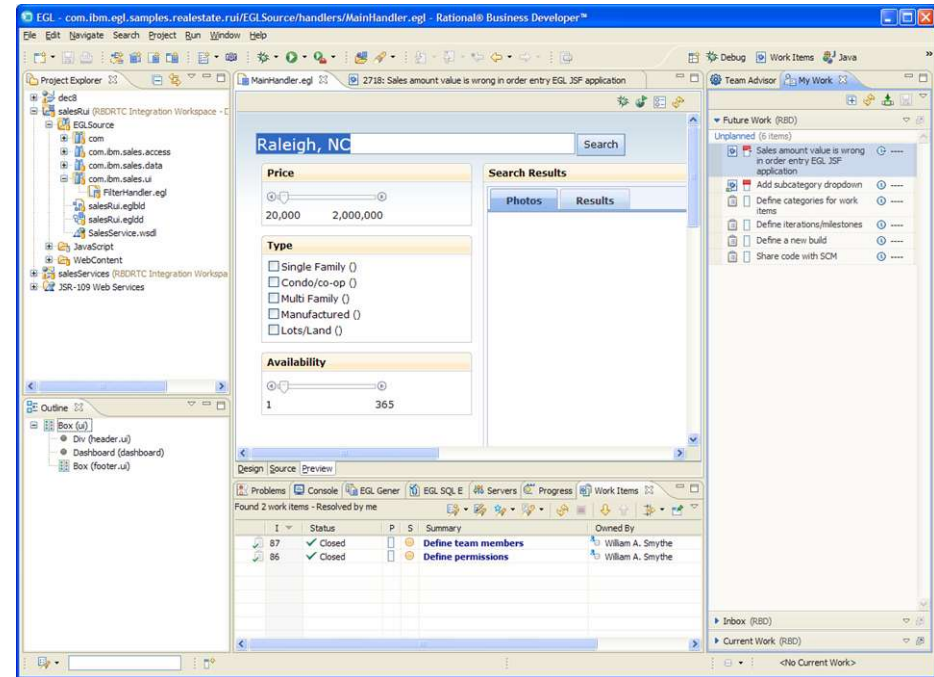


### Batch



# Rational Business Developer

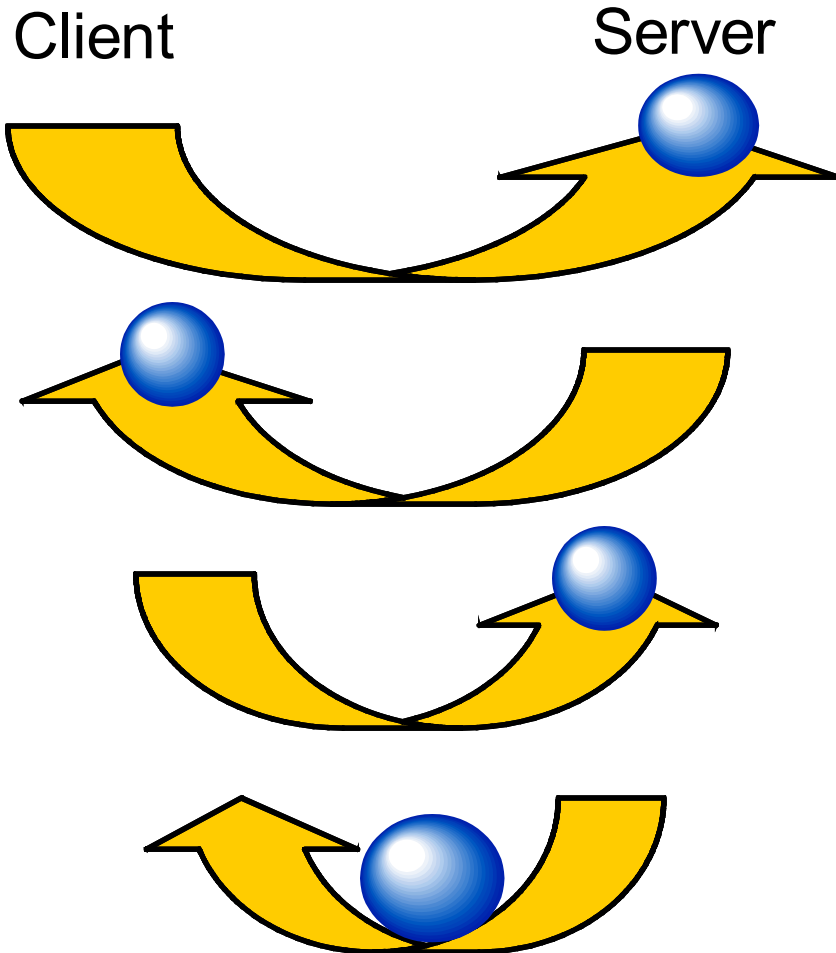
- Simplify the development of EGL Web, Web 2.0, Text UI, and SOA solutions with Rational Business Developer
  - ▶ Built on Eclipse
  - ▶ Supports integration with other Rational tools
- Features
  - ▶ Visual and source editors
  - ▶ Code completion, templates, and snippets
  - ▶ Service generation for database tables
  - ▶ SQL visualization and editing
  - ▶ References and declarations
  - ▶ Open on selection
  - ▶ Refactoring
  - ▶ Cheat sheets and dynamic help
- Debug EGL code within the IDE



- Integrate with Rational Team Concert / Jazz
  - ▶ EGL development teams can take advantages of the capabilities provided by Jazz/Rational Team Concert to manage EGL development projects



# Evolution of Computing



## Mainframe computing

“Dumb” green screen clients  
Omnipotent big mainframe servers

## Client-server computing

“Smart” Personal Computer clients  
Simple file and database servers

## Web (1.0) computing

Light Web Browser clients  
Rich application and database servers

## Web 2.0 computing

Rich Internet Application clients  
Lighter application and database servers



# Web Applications Today

- Web applications are no longer static, server-generated collections of pages
- Web 2.0 and Rich Internet Applications (RIAs) represent the next generation of Web applications
  - ▶ Provides capabilities of a desktop application, but with the manageability of a Web application
  - ▶ Enabled by technology like JavaScript and Ajax
  - ▶ Lightweight and built on open standards
- Provides a richer user experience, compared to traditional Web 1.0 applications
  - ▶ Simplified, but powerful user interfaces
  - ▶ Mashed up, related data from multiple sources
  - ▶ More processing happening on the client (e.g. validation)
  - ▶ Collaborative
- **Provides a new vehicle for delivering richer, more powerful business applications**
  - ▶ Web 2.0 and RIAs are not just for college kids





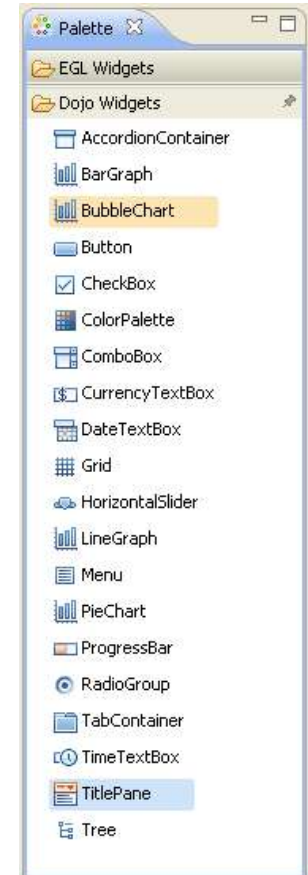
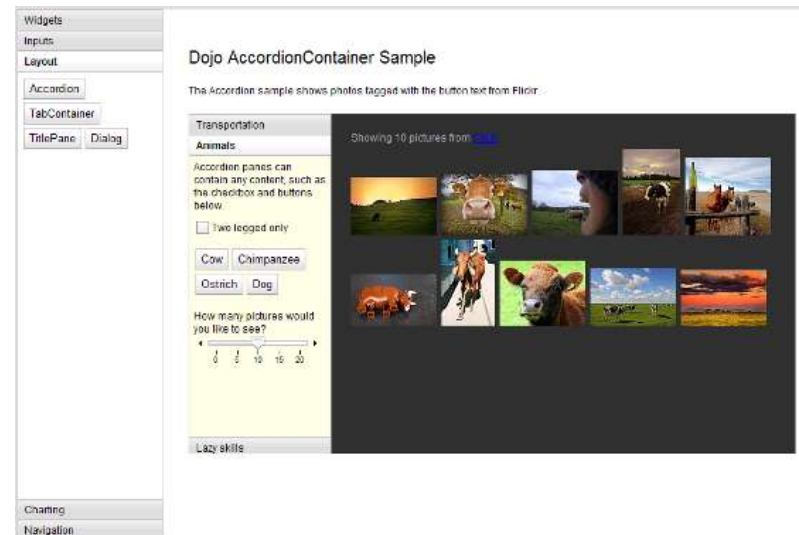




# Simplify Dojo



- Dojo is a popular and powerful open source JavaScript widget library
- EGL simplifies development of Dojo-based applications by including a Dojo widget library for EGL
  - ▶ No knowledge of Dojo or JavaScript required by the developer
  - ▶ Fits within the EGL programming model
    - Developers work with Dojo widgets just like any other EGL widget
- Sample code provided for each widget

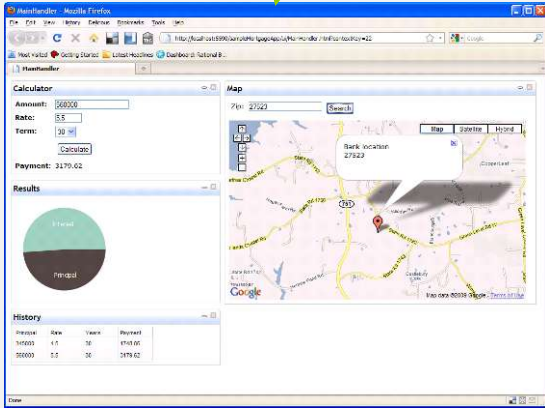


# Architecture Overview

Application served to client using HTTP



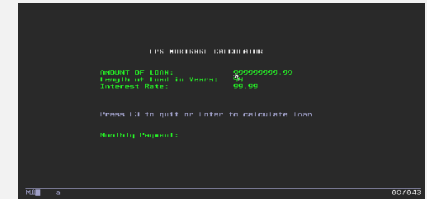
**Web Application Server**  
(Apache Tomcat or WebSphere Application Server Express)



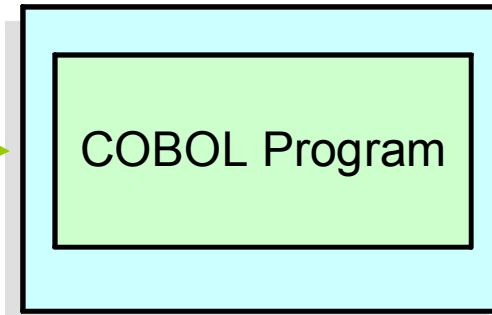
Mortgage Application

**Client Browser**

Call to SOAP  
CICS Web  
Service



Original BMS



COBOL Program

**CICS**



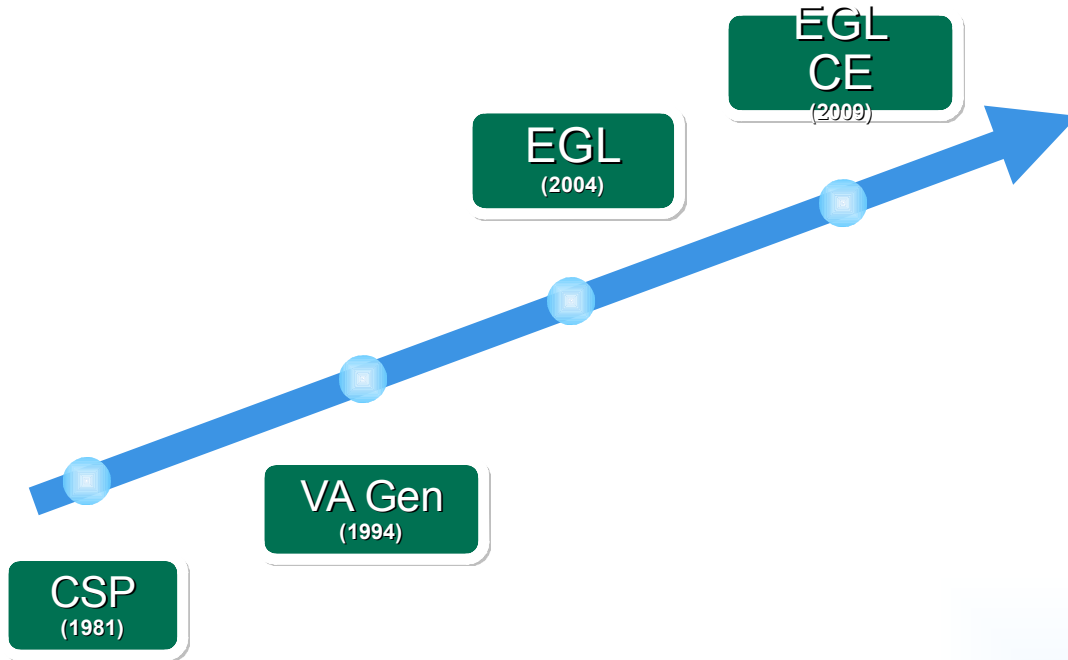
# Integrating with existing processing

## Options for Exposing CICS Assets in Web 2.0

- EGL Rich UI supports a number of approaches for interacting with CICS/COBOL resources on System z:
  - ▶ Option 1: Call CICS Web service directly
  - ▶ Option 2: Call COBOL program via EGL-generated CICS Web service
  - ▶ Option 3: Call COBOL program via CICSECI or CICS J2C with EGL service running on a mid tier (e.g. WebSphere Application Server).



# EGL: 30 years of innovation and investment



## EGL to date ...

- ✓ Represents 30 years of innovation and continued investment by IBM
- ✓ Introduced in 2004 as the follow on to CSP and VisualAge Generator
- ✓ Designed for extensibility
- ✓ Thousands of customers using EGL and predecessor technologies
- ✓ Migration paths have preserved customers' investments

## What we have heard ...

We prefer open languages because they are less risky to our business

We believe innovation is accelerated by giving others the ability to participate

We want to see an active community promoting awareness and growing skills



**OPEN**

*Announcing*  
**Eclipse EGL  
Development Tools Project**

*An evolution in business application development*



CLEAR

BLADE



- Open source project on Eclipse.org for the EGL language, compiler, source editing tools, debugger, and generators for Java and JavaScript
- Initial contribution based on technology in IBM Rational Business Developer
- Core EGL development by IBM and other participants in the open on Eclipse
- **Project launched June 7, 2010**



## Benefits of an open EGL ...

- **Reduces risk**
  - ▶ Jointly developed in the open at Eclipse.org
  - ▶ Source available under Eclipse Public License (EPL)
- **Accelerates innovation**
  - ▶ Gives others (not just IBM) the ability to ...
    - Build tools that compliment the tools provided by IBM
    - Extend deployment to new runtime platforms
    - Add language extensions to support new concepts
- **Broadens awareness and community**
  - ▶ Opens EGL to new audiences
  - ▶ Gives others the opportunity to be involved in the planning and development process

IBM®

### **Tools and solutions from IBM**

- Rational Business Developer
- Rational Developer for z with EGL
- Rational Developer for i for SOA
- Rational Migration Extensions

*IBM tools provide support for WebSphere Application Server, development of EGL JSF and TUI applications, generation of COBOL, and more ...*

**Read the project proposal:**  
[www.eclipse.org/proposals/egl](http://www.eclipse.org/proposals/egl)



## Get started today!

- Simplify development of Web 2.0 solutions **with EGL Community Edition**
- Eclipse-based development environment
  - ▶ Small download, simple install
  - ▶ WYSIWYG visual editor
  - ▶ Instant application previewing without deploying to a server
  - ▶ Full debug support for client and server-side code
- Rich Web user interfaces using Dojo
  - ▶ Fully extensible architecture supports other popular JavaScript widget libraries
- Build Java-based Web services without coding in Java
  - ▶ Take advantage of EGL's powerful keywords for accessing data in most popular databases, including MySQL
- **Spend more time innovating and less time fighting with technology!**

**Download EGL Community Edition today!**

<http://www.ibm.com/software/rational/cafecommunity/egl/ce>





# EGL Café

- Online community for EGL developers, partners, and clients
- Discussion forums
- Gallery of sample applications and widgets
- Presentations, videos, and articles
- Blogs by IBMers and partners
- Success stories
- Become part of the community today!

<http://ibm.com/rational/eglcafe>

**Resources:** Download, Learn, Presentations, Video/viewlet, Sample Code

**Community:** Clients, Partners, Influencers, Press, News and Events

**Collaboration:** Blogs, Forums, Tips and Techniques Comments, Ratings

**Testimonials:** Case Studies, Celebrations!



# EGL Distance Learning 2010

- Learn EGL by taking IBM's no charge (**free**) education course!
  - ▶ Explore the emerging cross-platform rapid development technology from IBM that enables you to build Web, Web 2.0, and SOA solutions using EGL.
  - ▶ Discover how quickly you can learn EGL and build state-of-the-art applications, all without getting bogged down in the technical complexities of middleware and runtime platforms
  
- **Topics**
  - ▶ Foundations of EGL
  - ▶ Web 2.0 development with EGL Rich UI

## 2010 Dates

- February 15
- March 29
- May 3
- June 21
- July 26
- September 13
- November 15

Up to 3 hours of instruction per day

3 to 5 hours of independent hands-on per day

## Register today!

<http://www.ibm.com/software/rational/cafe/docs/DOC-3004>



# Case Studies

- Case studies
  - ▶ Improving user experience with modern Web 2.0 UIs
    - City of Atlanta
  
  - ▶ Optimizing workload and saving cost
    - Atos Origin



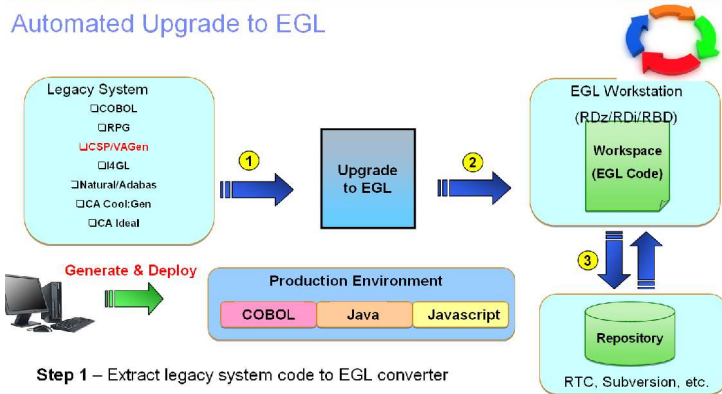
# City of Atlanta

## City of Atlanta - Problem



- Three core city systems (approx. 1,300 programs)
  - Fire Safety Permit System (FSAF)
  - Business License Information System (BLIS)
  - Criminal Justice Information System (CJIS)
- Green screen systems created with 4GL in late 1990's
- 4GL language (CSP) currently out of support
- City of Atlanta needed to get current on all of their software
  - OS/390 upgrade
  - CICS upgrade
  - DB2 upgrade
  - CSP upgrade to EGL

## Automated Upgrade to EGL



- Step 1** – Extract legacy system code to EGL converter
- Step 2** – Upgrade code from source to EGL, place in EGL environment
- Step 3** – Build EGL projects, packages, and files and store in code repository

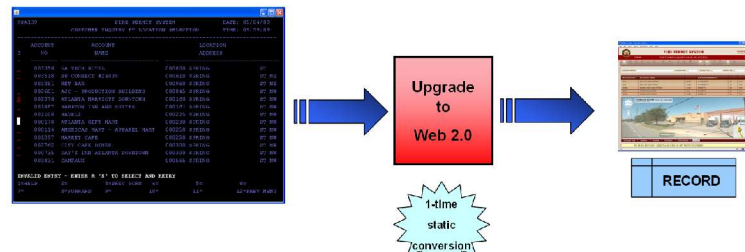
## City of Atlanta - Solution



- IBM partnership with ClearBlade to deliver upgrade to EGL
- Phase 1** - EGL green screen upgrade
  - Completed in 3 months
  - Compiled & deployed to CICS/DB2 (COBOL)
- Fire Permit System selected for Web 2.0 upgrade
- Phase 2** - Green Screen to Web 2.0/SOA (via RMerui)
  - Conversion completed in 2 months (80 screens)
  - Added mash-up functionality
  - Compiled & deployed to COA application server (Java & Javascript)
- Web 2.0/SOA Fire Permit System currently in test environment
- Production deployment planned for Q3
- Demo version of Fire Permit System available at:
  - <http://demo.clearblade.com/COAFire>

## Green Screen to Web 2.0/SOA Solution (conversion)

- A screen is a visual record
- Convert screen to record
- Convert screen to Web 2.0 page
- One-time conversion
- Result is static code



# Atos Origin



## Customer ATOS ORIGIN - Problem

- Retail Application
  - System z with IMS, DB2, IMS DB, VSAM
  - Languages Cobol + VAGEN
  - Batch + Online (3000 users) + Job Control
  
- Customer has new requirements
  - Reduce operating expenses by > 30%
  - Future-proof operating + development environment
  - Web Frontend instead of 3270
  - Low Risk
  - ROI < 12 months



## Customer ATOS ORIGIN - Solution

- Evaluate possible solutions
  - Downsizing or Mainframe ?
  - Cobol, Java or EGL ?
  - Compare different solutions with Pilots !
  
- Decision for EGL + Application Transformation
  - Stay on mainframe but move workload to cheaper Specialty Engines
  - Highly maintainable "Business Java" Code in EGL
  - Automated Transformation Engines for Cobol and VAGEN available
  - Very smooth step by step migration
  - 8 months project including preparations + staff training



## Customer ATOS ORIGIN - Results

- Future-Proof Operating + Development Environment ✓
  - System z + Java + DB2 + Websphere + Browser
  - RDz (Eclipse, EGL, Java Generation)
  
- Web Frontend instead of 3270 ✓
- Low Risk ✓
  - > 99% were transformed automatically
  - No change of complex job control required
  - Existing development team "migrated"
  
- Reduction of operating expenses by 55% ✓
  - > 75% of the workload were moved from CP to Specialty Engines
  - ROI achieved in 11 months





# Why Rational Migration Extensions and EGL?

Result	Value
Eliminate costly legacy environments (SAG, ...)	✓ Cost Reduction
Highly automated (98% +) migration	✓ Risk Reduction
Deploy migrated applications to needed platforms	✓ Application Flexibility
Better scalability potential	✓ Leverage best platform
Very easy transition for existing development staff	✓ Staff Flexibility
Transform Text-based screens to Rich Web (Web 2.0)	✓ Strategic UI Modernization
Consolidate data in DB2	✓ Better Access to Data

More Questions? Ask these folks...

ASIST  
CLEAR BLADE  
FBD ASSOCIATES INC.  
PKS BUILDING BRIDGES  
SYNCHRONY SYSTEMS, INC  
xact  
NEXTEL Engineering  
IBM  
IBM.COM/RATIONAL/EGLCAFE Data Express Online



# Questions





[www.ibm/software/rational](http://www.ibm/software/rational)

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