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Modernizing the Enterprise

Innovate2010

The Rational Software Conference

Let's **build** a smarter planet.

The premiere software and product delivery event.
August 3rd – 31st Asia Pacific



Agenda – Enterprise Modernization

- Introduction to EM Strategy
 - ▶ Key Assets
 - ▶ Rules of Engagement
- City of Atlanta Modernization using HATS
- Rational Developer for System Z
- Rational Unit Test
- Questions/Answers



IBM Rational Enterprise Modernization solutions can help

Optimize your applications, people, team and infrastructure investments



- **Increase flexibility** by revitalizing existing application portfolios
- **Boost productivity and accelerate innovation** with modern skills
- **Maximize business agility** by bridging organizational silos
- **Increase system utilization** by leveraging hardware capabilities

Rational Software Delivery Platform powered by *Jazz*



Increase flexibility by revitalizing existing application portfolios

Leverage existing application assets to create new products and services providing excellent Return on Investment



Reuse saves time and money

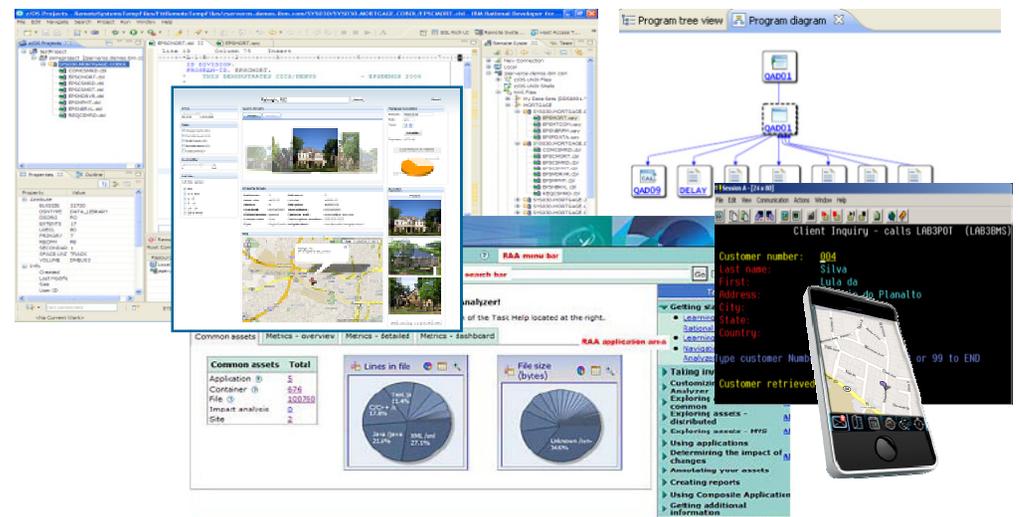
- Significant business knowledge invested in enterprise systems (over 250 billion Lines of code and 5 billion new per year) and 40-60%¹ is reusable
- Customer wants to leverage Qualities of Service built into Enterprise systems

Provides Competitive Advantage

- Faster delivery of new products and services
- Minimize business risk

Key capabilities

- Reduce risk by quickly determining the full impact of proposed changes
- Lower costs with identify and reuse of existing business logic for the Web
- Improve productivity by reducing or eliminate labor intensive efforts
- Transform green screen to modern interfaces
- Automate migration of legacy applications to newer platforms



- Rational Asset Analyzer
- Rational System Architect
- Rational Focal Point
- Rational Asset Manager
- Rational Developer for System z
- Rational Host Access Transformation Services
- Rational Migration Extension



Boost productivity and accelerate innovation with modern skills

Improve productivity by leveraging existing and new skills for multiplatform application development and testing



Boost productivity

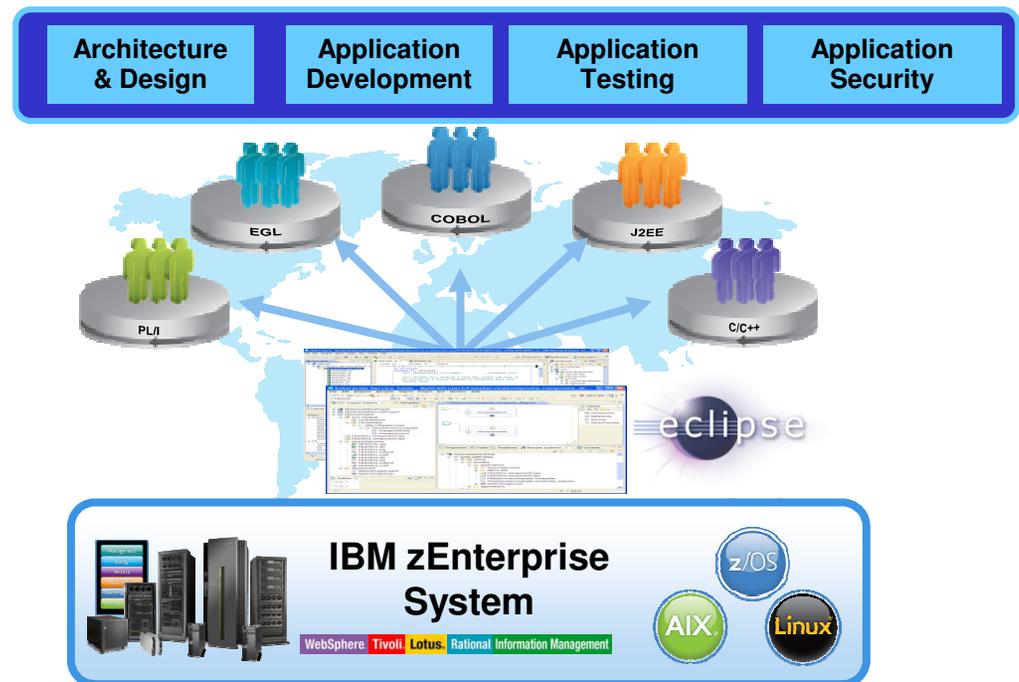
- Modern Eclipse-based tools to develop and maintain enterprise applications spanning multiple platforms, languages, and technologies
- Faster time to market by speeding application development and testing

Accelerate innovation

- Platforms & skills flexibility, for existing and new developers when building and testing all types of modern enterprise applications

Key capabilities

- Visual tools for rapid prototyping of new workloads and services
- Free up mainframe development MIPS for production capacity
- Up to 15% improvement in developer productivity¹, and modern tools with which to attract new talent



- Rational Developer for System z & Power Systems
- Rational Developer for System z Unit Test
- System z Solution Edition for Application Development
- Rational Application Developer, Rational Software Architect
- Rational Business Developer
- Eclipse EGL Development Tools Project
- Problem Determination Tools
- Rational Functional Tester, Rational Performance Tester
- Rational AppScan

Maximize business agility by bridging organizational silos

Lower total cost of ownership by deploying a common team infrastructure for collaborative software delivery



Maximize business agility

- Bridge organizational silos
- Enable agile, multi-platform and cross-geo collaboration and governance while reducing their team infrastructure costs

Minimize project risk

- Improved communication, higher quality, informed decision-making, and more automated, transparent and predictable software development

Key capabilities

- A consolidated repository for all development activity no matter the platform
- Improved productivity through increased collaboration and information availability
- Better project predictability using integrated planning, risk assessment and dashboards



- Rational Team Concert for System z and Power Systems
- Rational Requirements Composer
- Rational Quality Manager
- Rational Project Composer
- Rational Insight
- Rational ClearCase, ClearQuest



Increase system utilization by leveraging hardware capabilities

Increase system utilization, boost application performance and scalability by leveraging latest compilation technology



Increase application performance

- Allows customers to produce high-performing applications that are optimized for zEnterprise maximize return on investment

Reduce cost

- Lower capital outlays by increasing capacity, and improved performance of application suite

Key capabilities

- Exploit zEnterprise hardware
- Improved Optimization Technology
- Up to 60% performance improvement with the new C/C++ Compiler and zEnterprise systems¹
- Improve programmer productivity and code quality to reduce development cost



IBM XL C/C++ for AIX and Linux
IBM z/OS C/C++
IBM XL Fortran for AIX and Linux
IBM COBOL for z/OS, AIX
IBM PL/I for z/OS, AIX



Three Simple Messages

▶ Leverage Your Assets

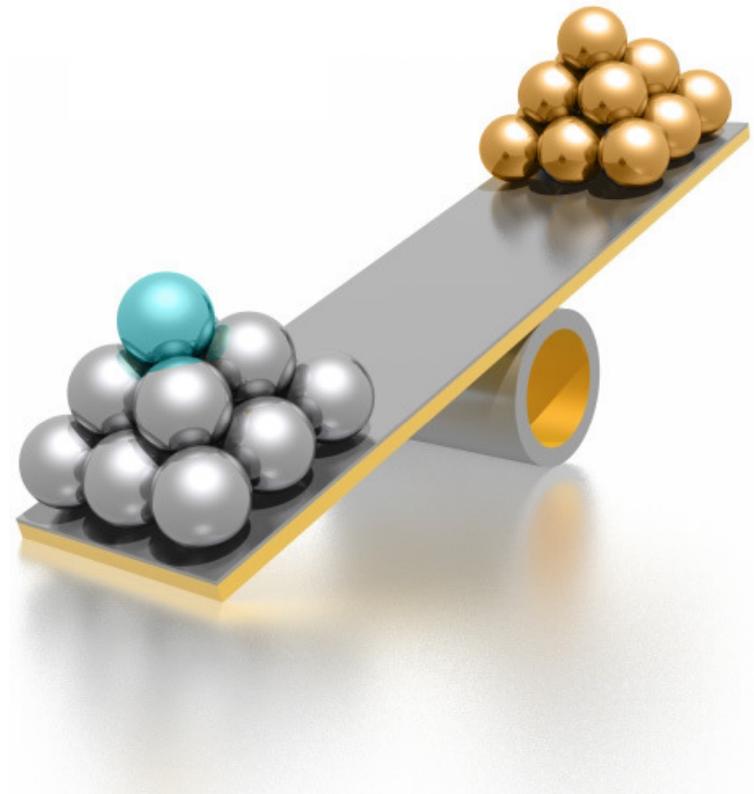
- Working Applications
- Current Staff

▶ Minimize Your Risk

- Upgrade your applications “as-is”
- Utilize proven IBM technology

▶ Maximize your ROI

- Agile development
- Show results in months, not years



City of Atlanta - Problem



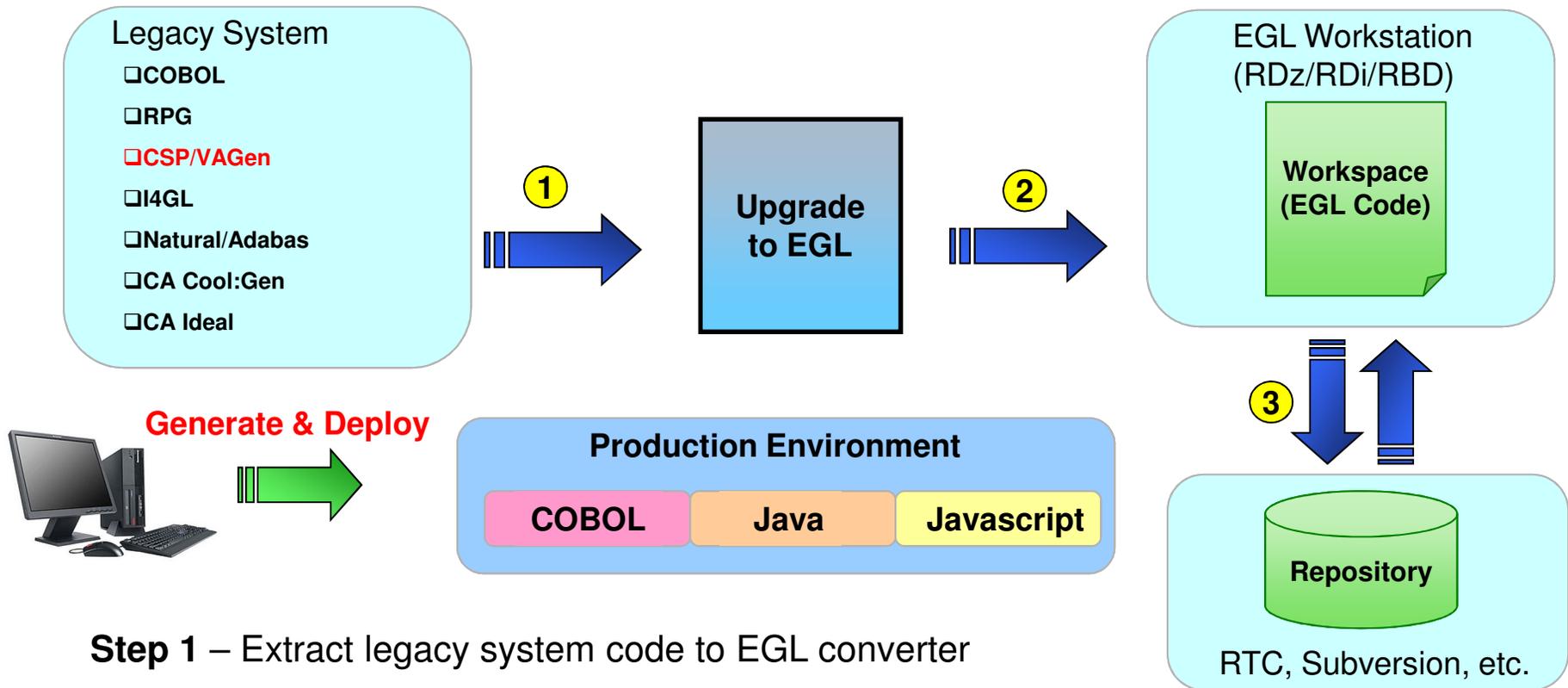
- Three core city systems (approx. 1,300 programs)
 - Fire Safety Permit System (FSAF)
 - Business License Information System (BLIS)
 - Criminal Justice Information System (CJIS)
- Green screen systems created with 4GL in late 1990's
- 4GL language (CSP) currently out of support
- City of Atlanta needed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

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>

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

List Selection Screen – Patterns

| ACCOUNT | | ACCOUNT | | LOCATION | |
|---------|--------|------------------------------|---------------|----------|--|
| S | NO | NAME | ADDRESS | | |
| | 003356 | GA TECH HOTEL | 000800 SPRING | ST | |
| | 003518 | BP CONNECT #24039 | 000610 SPRING | ST NE | |
| | 003351 | WET BAR | 000960 SPRING | ST NE | |
| | 002601 | AJC - PRODUCTION BUILDING | 000045 SPRING | ST NW | |
| D | 002376 | ATLANTA MARRIOTT DOWNTOWN | 000160 SPRING | ST NW | |
| | 001087 | HAMPTON INN AND SUITES | 000161 SPRING | ST NW | |
| | 001108 | HAVELI | 000225 SPRING | ST NW | |
| | 000178 | ATLANTA GIFT MART | 000230 SPRING | ST NW | |
| | 000114 | AMERICAS MART - APPAREL MART | 000250 SPRING | ST NW | |
| | 001397 | MARKET CAFE | 000250 SPRING | ST NW | |
| | 002762 | CITY CAFE DINER | 000300 SPRING | ST NW | |
| | 000735 | DAY'S INN ATLANTA DOWNTOWN | 000300 SPRING | ST NW | |
| | 003031 | CAMPAUX | 000565 SPRING | ST NW | |

INVALID ENTRY - ENTER A 'S' TO SELECT AND RETRY

1=HELP 2= 3=PREV SCRIN 4= 5= 6=
 7= 8=FORWARD 9= 10= 11= 12=PREV MENU



List Selection Screen – Patterns

| ACCOUNT | | ACCOUNT | | LOCATION | |
|---------|--------|------------------------------|---------------|----------|-------|
| S | NO | NAME | ADDRESS | | |
| | 003356 | GA TECH HOTEL | 000800 SPRING | | ST |
| | 003518 | BP CONNECT #24039 | 000610 SPRING | | ST NE |
| | 003351 | WET BAR | 000960 SPRING | | ST NE |
| | 002601 | AJC - PRODUCTION BUILDING | 000045 SPRING | | ST NW |
| D | 002376 | ATLANTA MARRIOTT DOWNTOWN | 000160 SPRING | | ST NW |
| | 001087 | HAMPTON INN AND SUITES | 000161 SPRING | | ST NW |
| | 001108 | HAVELI | 000225 SPRING | | ST NW |
| | 000178 | ATLANTA GIFT MART | 000230 SPRING | | ST NW |
| | 000114 | AMERICAS MART - APPAREL MART | 000250 SPRING | | ST NW |
| | 001397 | MARKET CAFE | 000250 SPRING | | ST NW |
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INVALID ENTRY - ENTER A 'S' TO SELECT AND RETRY

1=HELP 2= 3=PREV SCRN 4= 5= 6=
 7= 8=FORWARD 9= 10= 11= 12=PRV MENU

Header Area

Table Area

Message Area

Navigation Area

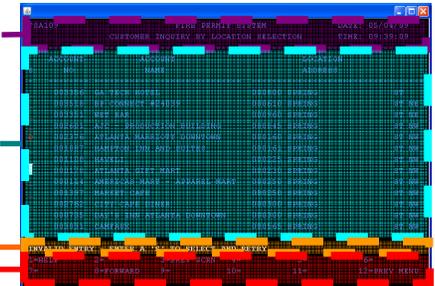
List Selection Screen – Green Screen to Web 2.0

FIRE PERMIT SYSTEM

05/04/09 10:24:39

FSA109
CUSTOMER INQUIRY BY LOCATION SELECTION
0

| ACCOUNT NO | ACCOUNT NAME | | LOCATION ADDRESS | | |
|------------|------------------------------|-----|------------------|----|----|
| 3356 | GA TECH HOTEL | 800 | SPRING | ST | |
| 3518 | BP CONNECT #24039 | 610 | SPRING | ST | NE |
| 3351 | WET BAR | 960 | SPRING | ST | NE |
| 2601 | AJC - PRODUCTION BUILDING | 45 | SPRING | ST | NW |
| 2376 | ATLANTA MARRIOTT DOWNTOWN | 160 | SPRING | ST | NW |
| 1087 | HAMPTON INN AND SUITES | 161 | SPRING | ST | NW |
| 1108 | HAVELI | 225 | SPRING | ST | NW |
| 178 | ATLANTA GIFT MART | 230 | SPRING | ST | NW |
| 114 | AMERICAS MART - APPAREL MART | 250 | SPRING | ST | NW |
| 1397 | MARKET CAFE | 250 | SPRING | ST | NW |
| 2762 | CITY CAFE DINER | 300 | SPRING | ST | NW |
| 735 | DAY'S INN ATLANTA DOWNTOWN | 300 | SPRING | ST | NW |
| 3031 | CAMFAUX | 565 | SPRING | ST | NW |



MORE RECORDS - CONTINUE TO BROWSE OR SELECT A RECORD

ENTER
Clear Screen
Reprint
Recalc
Save
Delete

Permits
Invoice
List
Contents
POPA Detail

Previous Screen
Previous Menu
Back
Forward

Help
End



List Selection Screen – Web 2.0

FIRE PERMIT SYSTEM
 05/04/09 10:24:39
 FSA109 CUSTOMER INQUIRY BY LOCATION SELECTION 0

| ACCOUNT NO | ACCOUNT NAME | LOCATION ADDRESS | | |
|------------|------------------------------|------------------|--------|-------|
| 3356 | GA TECH HOTEL | 800 | SPRING | ST |
| 3518 | BP CONNECT #24039 | 610 | SPRING | ST NE |
| 3351 | WET BAR | 960 | SPRING | ST NE |
| 2601 | AJC - PRODUCTION BUILDING | 45 | SPRING | ST NW |
| 2376 | ATLANTA MARRIOTT DOWNTOWN | 160 | SPRING | ST NW |
| 1087 | HAMPTON INN AND SUITES | 161 | SPRING | ST NW |
| 1108 | HAVELI | 225 | SPRING | ST NW |
| 178 | ATLANTA GIFT MART | 230 | SPRING | ST NW |
| 114 | AMERICAS MART - APPAREL MART | 250 | SPRING | ST NW |
| 1397 | MARKET CAFE | 250 | SPRING | ST NW |
| 2762 | CITY CAFE DINER | 300 | SPRING | ST NW |
| 735 | DAY'S INN ATLANTA DOWNTOWN | 300 | SPRING | ST NW |
| 3031 | CAMFAUX | 565 | SPRING | ST NW |

MORE RECORDS - CONTINUE TO BROWSE OR SELECT A RECORD



Data Entry – Green Screen to Web 2.0

The image shows two side-by-side windows. The left window is a green screen terminal displaying a data entry form for 'FSA115'. The right window is a Mozilla Firefox browser displaying a web-based version of the same 'FIRE PERMIT SYSTEM' interface.

Green Screen Terminal Data:

```

FSA115
-----
Account No.: 001087

  Exempt: N  Batt
Occup Type: 445  10
          EIN: 62-17287

Location Address:
  City, State, Zip: ATI
                Phone: 404
Emergency Phone:

Mailing Address:
  OR PO Box:
  City, State, Zip: ATI
                Attention:

  Owner-Manager: PAC
                Other:

RECORD SUCCESSFULLY
1=HELP          2=
7=              8=
    
```

Web Browser Interface Data:

FIRE PERMIT SYSTEM 05/04/09 09:57:16

FSA115 UPDATE CUSTOMER INFORMATION 0

Account No.: 001087 Account Name: HAMPTON INN AND SUITES
Trade Name: HAMPTON INN AND SUITES
Exempt: N Battalion: Council Distict: NPU: M Sprinkler: Y
Occup Type: 100 OR MORE UNITS, YEAR ROUND Close Date:
EIN: SSN:

Location Address: Bldg ID:
City, State, Zip: , - Bldg Type:
Phone: - Validate Street Address?: N
Emergency Phone: - Fax: -

Mailing Address:
OR PO Box:
City, State, Zip: , -
Attention:

Owner-Manager:
Other:

RECORD SUCCESSFULLY FOUND

Help Popup – Green Screen to Web 2.0

The screenshot shows a web browser window titled 'RUIController - Mozilla Firefox' displaying the 'FIRE PERMIT SYSTEM' interface. The main page is titled 'FIRE PERMIT SYSTEM' and 'MAINTAIN EMPLOYEE TABLE'. It features a navigation bar with various icons and a main content area with input fields for 'Enter User ID: FIRE032' and 'Employee Status: A'. A help popup window titled 'EMPLOYEE TABLE' is overlaid on the main content, providing instructions on how to use the system and a table of employee positions.

EMPLOYEE TABLE

To inquire on an employee, enter the user id and press <ENTER>. To change employee information, enter the user id, press <ENTER>, make changes and press PF5 to save the changes in the database. To add an employee, enter all information and press PF5 to add.

| Position | Inspector Type | Employee Status | Rank | Battalion |
|---------------|----------------|-----------------|------------|-----------|
| Admin | ' ' blank | A-Active | Captain | 1st |
| Office Asst | Highrise | I-Inactive | Lieutenant | 2nd |
| Inspector | Airport | | Specialist | 3rd |
| Fire Engineer | | | | 4th |
| 5th | | | | |
| 6th | | | | |
| 7th | | | | |

RECORD SUCCESSFULLY FOUND

Enhanced Web 2.0 Pages – Widgets

Layout

- ✓ Elastic layout with attachments & splitters
- ✓ Resizable and movable panels

Widgets

- ✓ Combo boxes
- ✓ Radio controls
- ✓ Check boxes
- ✓ Tab controls



Enhanced Web 2.0 Pages – Complex Pages

FIRE PERMIT SYSTEM 05/08/09 14:15:10

FSA106 CUSTOMER INQUIRY NAME SELECTION 0

Account Name: Account No: Invoice No: Permit No.:

| ACCOUNT NO | ACCOUNT NAME | | LOCATION ADDRESS | | |
|------------|-----------------------|------|------------------|----|----|
| 040 | BIG JACK INDUSTRIES | 104E | W MARIETTA | ST | NW |
| 352 | BIO-TEK INDUSTRIES | 138C | W MARIETTA | ST | NW |
| 2936 | BOBBY DODD INDUSTRIES | 212C | MARIETTA | BV | NW |
| 3817 | ZORIN INDUSTRIES | 111 | MARIETTA | BV | NW |
| 2018 | ZUMAR INDUSTRIES | 1594 | MARIETTA | BV | NW |

Account No: 003817 Account Name: ZORIN INDUSTRIES
 Battalion: 6TH Trade Name: ZORIN INDUSTRIES
 Close Date: Status: N Exempt: Y
 Occup Type: 789 VEHICLE ASSEMBLY NOT CLASSIFIED CD: NPU: K Sprinkler: Y
 EIN: 12-1234560 SSN:

Location Address: 111 MARIETTA BV NW Bldg ID:
 ATLANTA, GA 30310 Bldg Type:
 Phone: 404 - 555-1234 Emergency: - Fax: -

Account Info | Permits | Invoice | Contents | POFA Detail

NO MORE RECORDS - SELECT A RECORD OR GET PREVIOUS SCREEN

Common Header and Toolbar

Search Form

Selection Form

Detail Form

Tab Control of Drill-down Forms

Common Message Box

Enhanced Web 2.0 Pages – Mash-Ups

| ACCOUNT NO | ACCOUNT NAME | LOCATION ADDRESS |
|------------|-----------------------|-----------------------|
| 343 | BIG JACK INDUSTRIES | 1045 W MARIETTA ST NW |
| 352 | BIO-TEK INDUSTRIES | 1380 W MARIETTA ST NW |
| 2936 | BOBBY DODD INDUSTRIES | 2120 MARIETTA BV NW |
| 3817 | ZORIN INDUSTRIES | 1111 MARIETTA BV NW |
| 2018 | ZUMAR INDUSTRIES | 1594 MARIETTA BV NW |

- ✓ Drag & drop
- ✓ Mash-ups
- ✓ Added business value
- ✓ Added new services
- ✓ Coexistence with legacy



Benefits of New Fire Permit System

- ▶ Consistency of system logic & design
- ▶ Modern web 2.0 user interface
- ▶ Increased functionality (mash-ups)
- ▶ Separation of UI from server (SOA)
- ▶ Open development language
- ▶ Improved flexibility to the business



Today's mainframe development environment

ISPF has provided consistent tooling for decades, but it is limiting



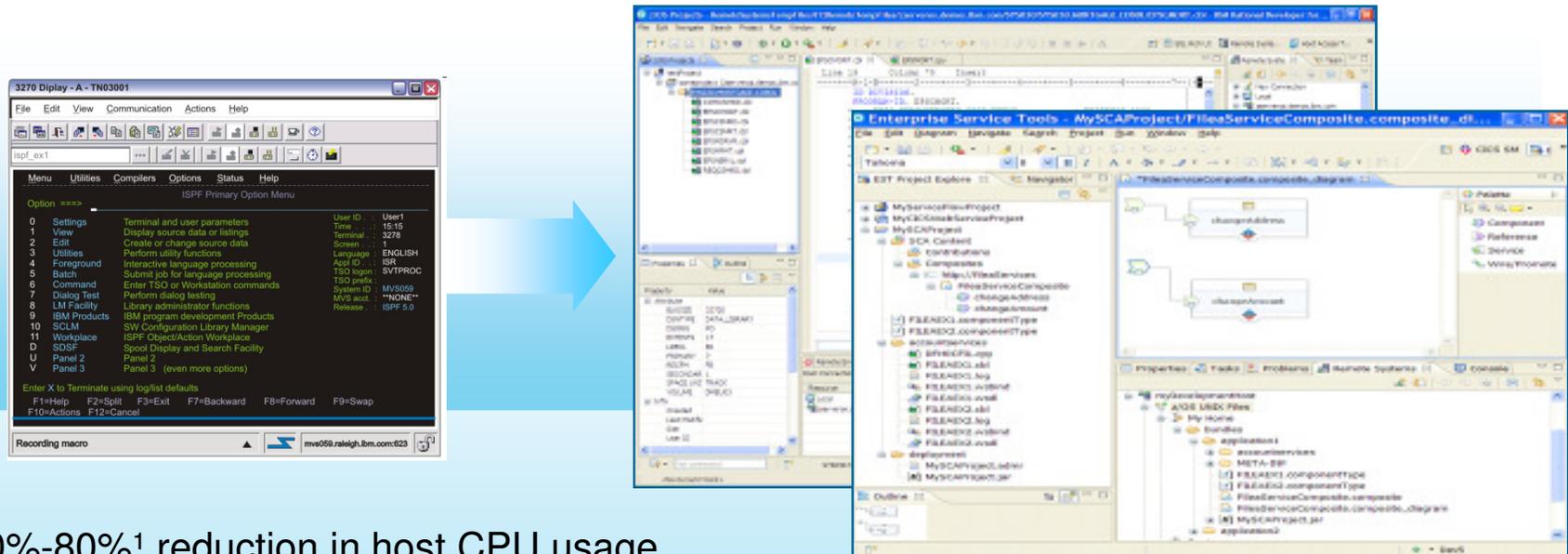
Drawbacks:

- Constant connection to mainframe is required
- Development shares processor with production use, gets lower priorities
- Inability to create cross platform components
- ISPF green screen UI is unappealing to and can be difficult for new hires to learn
- MIPs usage for Development vs. Production usage



Rational Developer for System z

Eclipse-based tools to develop and maintain enterprise applications spanning multiple platforms and languages



- ✓ 50%-80%¹ reduction in host CPU usage with workstation syntax checking
- ✓ 15% or more improvement in developer productivity¹
- ✓ Tools with which to attract new talent

▪ Rational Developer for System z

“RDz offers a uniform, open programming environment for both J2EE and PL/I developers. RDz accelerates PL/I development with its local syntax checker and debugging tool.”

- [Dr. Axel Lömker, KfW Bankengruppe](#)

¹ Aggregation of results from a productivity study conducted by IBM System z customers



Today's mainframe development environment with RDz and ISPF

RDz provides relief...but customers want more



Modern IDEs add value:

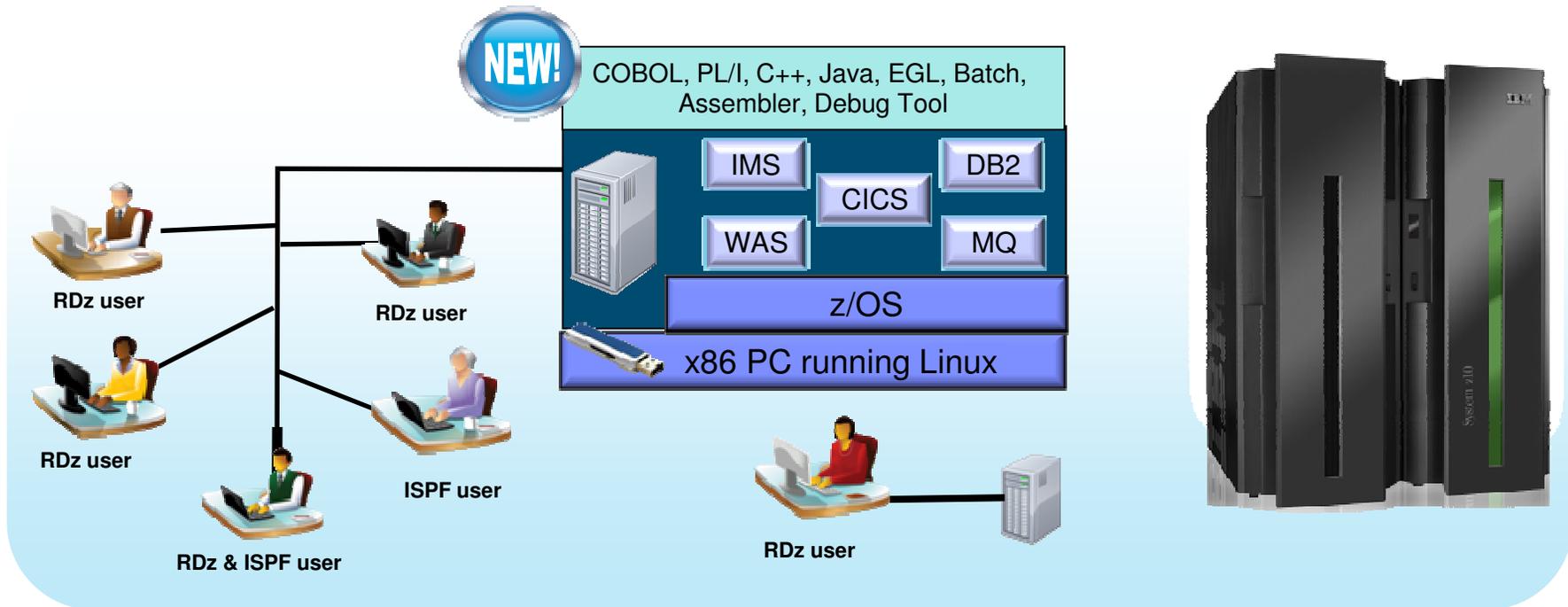
- Productivity enhancing tooling; more attractive tooling for new developers
- Ability to offload some development MIPS usage
- Integration with complete application lifecycle tools

But challenges remain:

- Business pressures to manage mainframe MIPS usage for development
- Unit test delays caused by dependencies on operations team

Announcing the RDz Unit Test Feature

The ultimate in modern application development for System z



- Liberate developers to rapidly prototype new applications
- Develop and test System z applications anywhere, anytime!
- Free up mainframe development MIPS for production capacity
- Eliminate costly delays by reducing dependencies on operations staff

Note: This Program is licensed only for development and test of applications that run on IBM z/OS. The Program may not be used to run production workloads of any kind, nor more robust development workloads including without limitation production module builds, pre-production testing, stress testing, or performance testing.

Customers are adopting Rational solutions for Enterprise Modernization

**Gained
15% in productivity**

UniCredit modernizes mainframe development and testing with IBM Rational Developer for System z software

More than 200 developers at HVB IS began using IBM Rational Developer for System z software to develop mainframe applications for IBM System z servers.

**Increased
developer productivity
by 15%**

Wipro and its customer chose IBM Rational Business Developer and EGL technology to modernize the application

The new system accesses the customer's existing IBM DB2 information management system running on an IBM System i platform, and now includes IBM WebSphere Application Server software to support a modern, three-tier architecture.

**Reduced
development time by
15-20%**

SoforTe improves productivity for developers and customers with IBM Rational software on System z and Rational Team Concert for System z

SoforTe chose to implement RDz and RTCz on an IBM System z10 Business Class server running z/OS and clients running Microsoft® Windows® clients to provide a modern powerful development environment for its customers.

IBM Enterprise Modernization Sandbox

Optimizing the value of your assets, skills and infrastructure investments

- ✓ Learn how to revitalize applications, empower people, unify teams and exploit infrastructure based on your knowledge and experiences
- ✓ New extended trials offering for customers and partners who need more time to explore product features in a controlled environment
- ✓ Get fast start with scripted scenarios and best practice education materials at no cost available 24x7
- ✓ A low risk way to try out several new offerings and integrated solutions without disturbing your existing environment



<http://www.ibm.com/developerworks/downloads/emsandbox/>

Since the System z and Power Sandboxes are deployed in IBM's own data centers and available through a browser with a minimal footprint (i.e., a Citrix plug-in install) you can now realize the value proposition of IBM's Software Products firsthand within minutes.



IBM Rational Cafés – Connecting Developer Communities

Collaboration solutions

Connect your people to information, experts and each other



- To become more innovative and more competitive, companies know that education – in all forms is necessary - today more than ever.
- To help, IBM has implemented solutions that feature community-based knowledge sharing - that give your developers instant, secure access to shared content, and expertise in:
 - ▶ RDz / RAA/ RTCz/ HATS / COBOL / IMS / CICS / DB2 and z/OS
 - ▶ RDp / RTCp / HATS/ RPG / iSeries / AS/400, IBM i, 5250
 - ▶ EGL / EGL CE / Web 2.0 / Rich UI / Mobile
 - ▶ z/OS XL C/C++, Fortran, AIX
- Check out the COBOL, RPG, EGL and C/C++ Cafés
 - ▶ <http://www-949.ibm.com/software/rational/cafe/index.jspa>
- And check out upcoming free, self-paced IBM training in:
 - ▶ RDz / RAA / COBOL / IMS / CICS / DB2 / RDp and more...



Questions

Let's build a smarter planet.





www.ibm/software/rational

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Let's build a smarter planet.



Old VSE Customers - Problems

- Customer's business problem and challenges

The customer has an old VSE (3270) application that is doing its job well. New CSRs and new customers have a really hard time learning the old application in an emulator.

- Overview of previous solution and associated technical challenges

The emulator was their solution for years and then attempted using a competitive product to web enable the application. Because of the uniqueness to their application, the other solution called for lots of custom development which only worked about half the time.

- Alternatives considered

Purchase a completely new application –lots of risk and pricey.

- New solution overview

Using a modern integrated development environment like Rational Application Developer and HATS, they have web enabled their application with HATS. Using style sheets and the company's web site look and feel, the old 3270 application looks modern and user friendly and more productive.

- Key technical benefits

Rational Application Developer and HATS allows customers to web enable all existing 3270 applications right out of the box. With additional customizing almost any look and feel is possible.

- Key business benefits and results achieved

Taking a low risk and low cost approach, by web enabling the old 3270 application the company is experiencing more productive CSRs and a easy web experience for their customers.



Clark County/Metro Police

- **Customer's business problem and challenges**

Customer needed to retrieve mainframe information to a state wide web application used by every state agency. All the information requests were placed into a message queue and the message response was placed back in the queue for the front end web application to display.

- **Overview of previous solution and associated technical challenges**

In the past agencies would call the various police departments for records. This was a long process that was not very efficient.

- **Alternatives considered**

Purchase a completely new application –lots of risk, lots of development, and pricey.

- **New solution overview**

Using a tool like HATS, you can web enable the front end and also run macros and web services behind the screens in a non-display fashion. Macros are a fast method of recording keystrokes and passing inputs and then retrieving outputs. By monitoring requests in the message queue, we would read then message and then run a HATS macro to retrieve mainframe information. There were 90 different types of messages in the queue that were all handled with one HATS macro. Average response time is than one second.

- **Key technical benefits**

HATS macros/web services provides integration to mainframe via backend processing or GUI front.

- **Key business benefits and results achieved**

Taking a low risk and low cost approach, by using web services makes a solution more flexible for changes down the road.

