

Innovate2010

IBM開發者大會



跨平台開發快”譯”
通，新舊語法 EGL 全
搞定！

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

August 31, 2010 台北喜來登



Agenda

- Introduction to IBM's newest business language, EGL
- Web 2.0 with EGL
- Real world success with EGL
 - ▶ City of Chesapeake
 - ▶ Oxford International
- EGL Open
- Next steps



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





Why EGL?




Skills
Allows developers to focus on business problems, not technology problems

Platform Flexibility
Delivers maximum platform and runtime independence




Productivity
Allows developers to focus on business problems, not technology problems

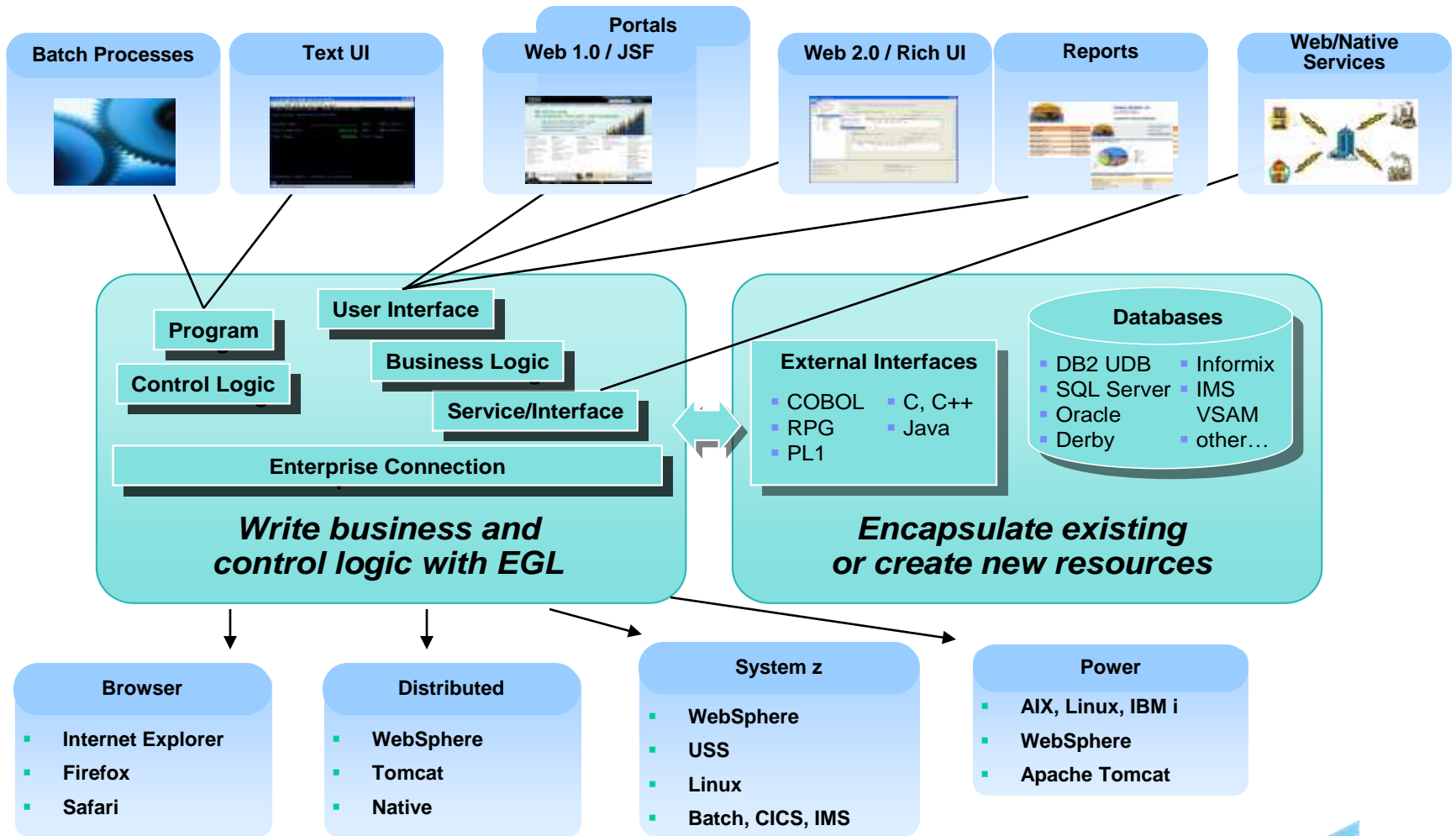
Modern
Eclipse-based tools simplify development of Web 2.0 style applications and Web services



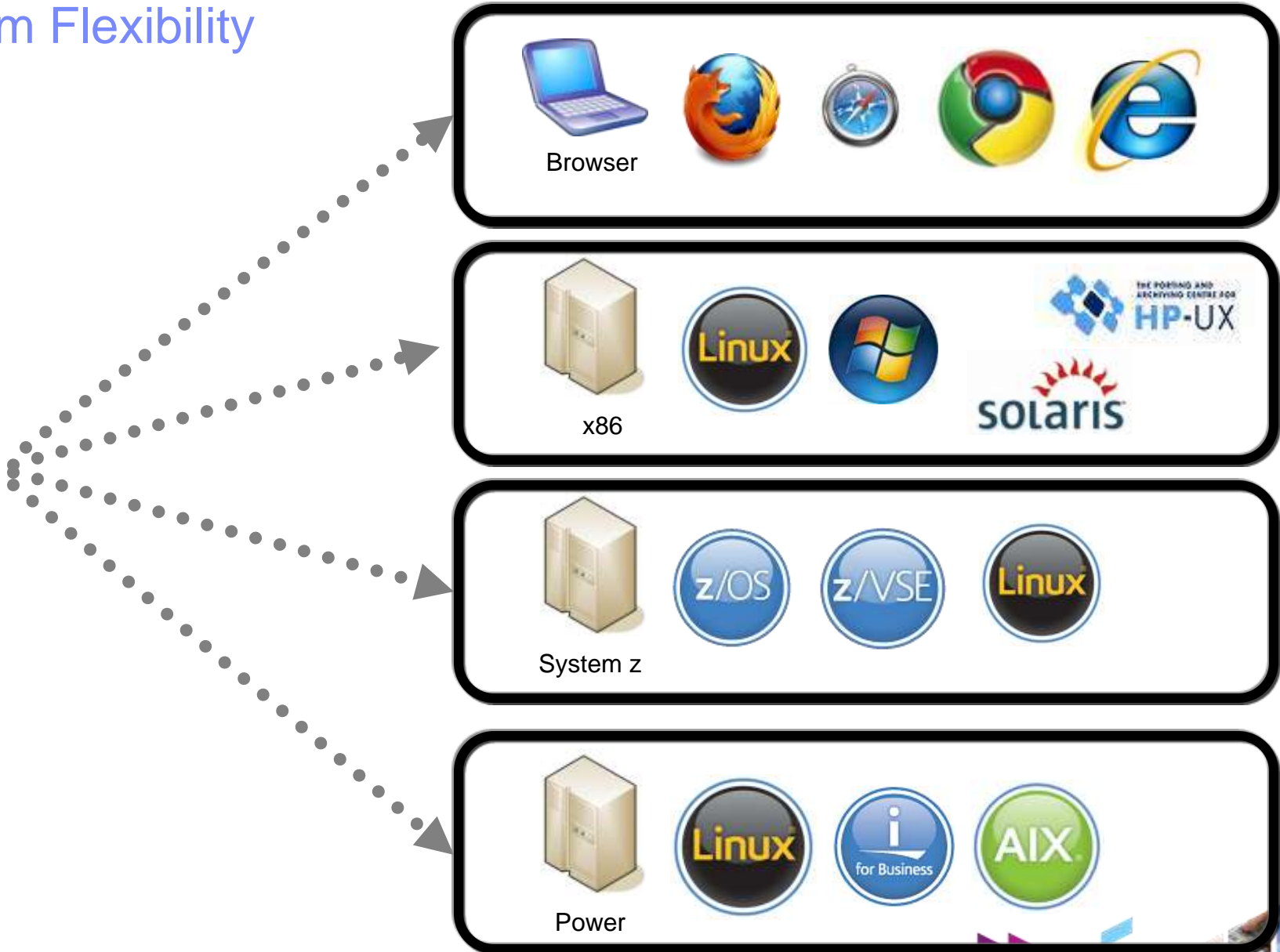
Adaptability
Delivers a modern language that evolves as technologies and runtimes change



Respond to Broadest Application Needs

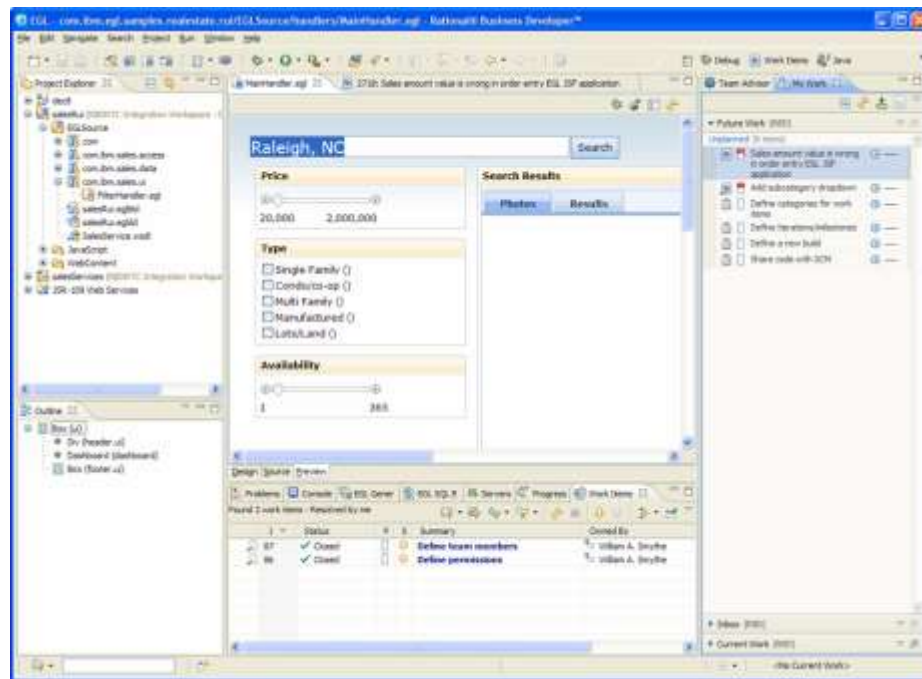


Platform Flexibility



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



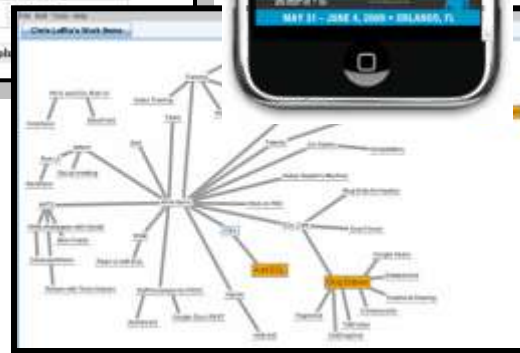
- Integrate with Rational Team Concert / Jazz
 - ▶ EGL development teams can take advantages of the capabilities provided by Jazz/Rational Team Concert to manage EGL development projects



Web 2.0 with EGL



- Simplify creation of Rich Internet Applications
 - ▶ Deliver end-to-end Web 2.0 quickly in a single language
 - ▶ Build rich user interfaces to modernize existing applications
- Compiles into standard JavaScript and Ajax
 - ▶ No browser plug-ins required
 - ▶ Works with all major browsers
- Easy-to-learn for all types of developers
- Fully open and extensible
 - ▶ Utilize popular and open existing JavaScript libraries, like Dojo, Ext JS, and jQuery
- Eclipse-based development, testing, and debugging
- Consume all types of Web services



EGL in Action (Side-by-Side Comparison)

EGL Rich UI

```

handler MyRuiHandler type RuiHandler { initialUI = [ addressForm,
map ] }

addressField TextField { text = "1600 Pennsylvania Ave, Washington
DC", width = 250 };

goButton Button { text = "Go!", onClick ::= goButton_clicked };
addressForm Box { children = [ addressField, goButton ] };

map GoogleMap { width = "500px", height = "300px" };

function goButton_clicked (e Event in)
addresses String[] = [ addressField.text ];
map.showAddresses(addresses, addresses);
end
end
    
```

HTML and JavaScript

```

<html xmlns="http://www.w3.org/1999/xhtml"
com:vml">
<head>
<meta http-
<title>Goog
<script src=
"urn:schemas-microsoft-
html; charset=UTF-8"/>
g</title>
pi&amp;v=2.x

var map = n
var geocoder =

function initialize() {
if (GBrowserIsCompatible()) {
map = new G
map.setCe
reader
}

function showAddress() {
if (geocode
geocoder.
address
function
map.s
var n
map.a
marke
);
}
}
</script>
</head>

<body onload="initialize()" onunload="GUnload()">
<form action="#" onsubmit="showAddress(this.address.value); return
false">
<p>
<input type="text" size="60" name="address" value="1600 Pennsylvania
Ave, Washington DC" />
<input type="submit" value="Go!" />
</p>
<div id="map_canvas" style="width: 500px; height: 300px"></div>
</form>
</body>
</html>
    
```

All code, including UI and controller logic, is written completely in EGL.

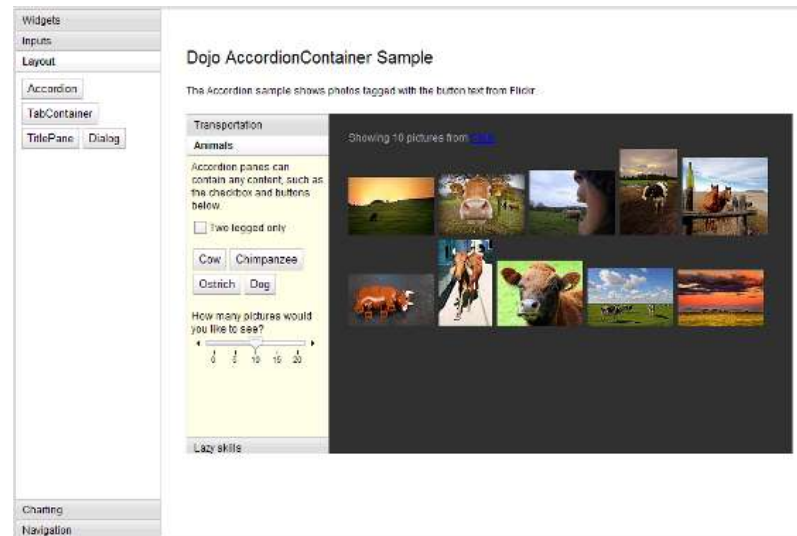
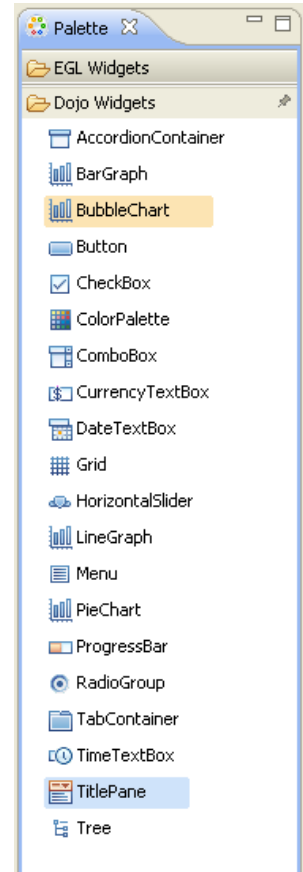
The complexity of the Google Map APIs are hidden from the developer, so the developer can focus on the actual business requirement and not technical complexities.

Developing RIAs by hand requires developers to become experts in multiple technologies – HTML and JavaScript. Neither was designed for the kinds of applications being developed today!



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





City of Chesapeake



City of Chesapeake Overview

- Chesapeake is the second-largest city by land area in the Commonwealth of Virginia
- It is currently the third largest city in Virginia in terms of population.
 - ▶ In 2006, its population was estimated to be 220,560, a 10.7% increase since its 2000 census count.
- The City of Chesapeake is a local government entity
 - ▶ Revenue collection is derived mostly from the collection of Real Estate taxes, Personal Property taxes; and other service-generated fees.
 - ▶ The City of Chesapeake's current Budget (2010-2011) is \$873 Million.



City of Chesapeake Overview

- The City of Chesapeake's Information Technology Department consists of **60 technology professionals** encompassing:
 - ▶ Operations, application development, vendor support, network, database administrators, help desk, and administration.
- The Application Development Division consists of **20 technology professionals** who perform both in-house development and vendor support.
- My role within the Application Development Division is to perform complex, in-house application development. Since joining the city, I've been a team member for the following projects:
 - ▶ Rewriting the Real Estate Tax Accounting system,, which accounts for over \$250 Million in local revenue collection and which included the creation of a consolidated Taxpayer Online System.
 - ▶ Converting our Visual Age development platform to RBD/EGL; and leading the development efforts for our first Rich UI "mainframe modernization" project – putting permit applications and credit card payments online.



Our Business Challenge

- The challenge:
 - ▶ Expose our existing mainframe-based permit issuing (building, electrical, gas, plumbing, etc.) and payment systems into a Web-based, client-facing portal.
 - This would allow building contractors and property owners to **more conveniently and quickly apply and pay for needed permits** without having to travel to the Department of Development and Permits in City Hall.
 - Not only is this a convenience for our customers, it also **allows the city to realize cost savings** by better utilizing the staff who are currently needed to service the permit applications and accept payments at the counter.

- This project would entail:
 - ▶ Developing a Web services-based design to access our mainframe DB2 database tables for full CRUD (create, read, update, delete) functionality;
 - ▶ Incorporating an online payment vendor into our custom solution;
 - ▶ Infrastructure upgrades to WebSphere Application Server.



Our Business Challenge

- The most challenging aspect of this project was the fact that our Mayor issued the challenge in March of 2009 that our online permit system would be ready for business by the end of March 2010; however, our VA-Gen to EGL migration was not completed until the beginning of January 2010!!

As a consequence, we had 90 days to move from high-level business requirements to a full system prototype!

- We needed to utilize a software solution that would allow us to:
 - ▶ Become productive in our new Web application environment very rapidly;
 - ▶ Aid our development efforts by enabling us to use “pre-existing” JavaScript widgets in our client-facing code.



Solution

- EGL with Rich UI along with Rapid Application Development techniques, to create the ezPermit system.
- Benefits of the EGL solution:
 - ▶ Reused many functions of the current “green screen” permit application, which had already been converted to EGL;
 - ▶ “Screens” (RUI handlers and widgets) were built based upon the IBM-provided widgets, including use of:
 - Accordion Containers, Title Panes, Grids, Tab Containers and HTML widgets (to create an imbedded HTML form for payment posting).

Using two developer resources, we were able to go from high-level business requirements to a fully-functioning prototype in 90 days. The production go-live of the system followed only two weeks later!



- Store userid/pwd in cookies for ease of future login
- DojoCheckbox with an OnChange event
- HTML widget for Terms and Conditions hyperlink

Home Contact FAQs A-Z Index Site Map Search GO

Chesapeake
VIRGINIA

Official City Site
CityofChesapeake.net

Economic Development :: Education :: eServices :: Jobs :: Library :: Maps :: News Room :: Taxes

Welcome to the ezPermit System
Version 1.01.001

User ID:
Password:

Store your User ID/Password for future use.

Terms and Conditions, Please read and check to signify acceptance.
[Terms and Conditions](#)

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- Establish session id and store in DB2 table for persistence
- InfoBus Publish and Subscribe for communication between “pages”

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VIRGINIA

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Welcome to the ezPermit System
Version 1.01.001

Application and Payment

Owner/Contractor Info.
Property Search
Summary/Checkout

Show Paid Receipts
Show Unpaid Receipts

Log Out

Owner/Contractor Information

Customer ID: 13758
Name: TESTA GREG
type: O
City License: 0
City License Nbr: 0
State License Nbr: 0
State Expiration: 0
Trade As:
Mailing Street Addr: 300 SHEA DR
Mailing City: CHESAPEAKE
Mailing State: VA
Mailing Zip: 23320
Phone Nbr: 7573826658
Current Value: 0

▶ Logon Information - Please click to display/hide

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Welcome to the ezPermit System
Version 1.01.001

Application and Payment

Owner/Contractor Info.
Property Search
Summary/Checkout

Show Paid Receipts
Show Unpaid Receipts

Log Out

There is an alert on this parcel, please choose another

PARCEL NO.	PROPERTY ADDRESS	OWNER NAME
1300000000571	0 BORDER ROAD SUITE 04349	PLYMOUTH PARK CORP
1290000001831	0 BORDER ROAD SUITE 04350	MASON CLYDE L
1290000001821	2300 BORDER ROAD	MASON CLYDE L
1290000001821	2300 BORDER ROAD SUITE #A	MASON CLYDE L
1290000001821	2300 BORDER ROAD SUITE #B	MASON CLYDE L
1290000001821	2300 BORDER ROAD SUITE #C	MASON CLYDE L
1290000001840	2302 BORDER ROAD	AMIN BROTHERS LLC
1290000001810	2307 BORDER ROAD	OVERTON JR MARKETS OF S N INC
1290000001810	2309 BORDER ROAD	OVERTON JR MARKETS OF S N INC
1290000002160	2402 BORDER ROAD	WILLIS WESLEY P JR & RUTH ANN
1290000002880	2501 BORDER ROAD	GEORGIO CONSTRUCTION INC
1290000002440	2502 BORDER ROAD	HARRIS CHRISTINE D
1290000002870	2503 BORDER ROAD	STEVEN HALL RENTALS LLC
1290000002460	2504 BORDER ROAD	RICHARD LOGAN J L
1290000002840	2505 BORDER ROAD	KUEN INC
1290000002470	2506 BORDER ROAD	WILLIAMS FLORENCE JEAN

- Grid widget stores results of Property Search

- Real-Time integration with DB2 tables to duplicate existing mainframe permit system functions

- Button disabling function to stop further processing



- Dojo Title Pane widgets store Customer and Property Information
- Google map API “mash-up”
- Dojo Tab Container allows for future growth when adding new permit types



- Multiple permits and types per one payment
- Integration of a third-party online payment vendor
- Permit is an HTML print of DB2 data
- Permit is generated via an HTML widget using a "Form Post" with parameters into a new browser window

The screenshot shows a web browser window displaying the 'PermitPrintScreen' page for the City of Chesapeake. The browser's address bar shows the URL: http://ez.cityofchesapeake.net/OnlinePermitPrint/PermitPrint-en_US.html?PERMIT=P10020170&. The page content is as follows:

City of Chesapeake
Department of Development and Permits
PLUMBING PERMIT
 For Inspection Call (757) 382-2489

Permit number P10020170 Permit Date 04/14/2010 Property Tax Map 387001001460

Property Street 1204 CAMBRIDGE COURT Suite Zip 0
 Subdivision Borough WA
 Legal Description 146 HUNNINGDON WOODS SEC 5

Contractor Number 15811 Contractor Type 0
 City License 0 State License Expiration
 Name FITCHETT MICHAEL In Care of
 Trading As
 Address Line 2 300 SHEA DRIVE
 City CHESAPEAKE State VA Zip 23322 Telephone 7573826391

Owner Information
 Name WALLACE PEDRO & MARIA E In Care of
 Address 1204 CAMBRIDGE CT
 City CHESAPEAKE State VA Zip 233208248

New X	Existing	Addition	Occupancy Load	0	For Use As	RESIDENTIAL
Code Used	IRC	Use Group	USBC Edition	2006	Flood Zone	No
Description	Total Value of Construction	\$100	Proffer/Stipulation			
Fees	Plumbing	45.00	Levy	0.90	Late	0.00
Total Fees	\$50.90	Receipt Number	17793	By	EZPERMIT	Technology 5.00

Master Plumber Telephone
 Residential X Commercial

Plumbing Fixtures

Water Closets	1	Lavatories	0	Urinals	0
Kitchen Sinks	0	Slop Sinks	0	Roof Drains	0
Water Heaters	0	Laundry Tubs	0	Showers	0
Washing Machines	0	Floor Drains	0	Dish Washer	0
Drinking Fountains	0	Bath Tubs	0	Other:	0

The left sidebar of the web application contains the following elements:

- Home
- Contact
- FAQs
- A-Z Index
- Site Map
- Search

Chesapeake VIRGINIA
 Economic Development :: Education :: eServices :: Jobs ::

ezPermit System
 r1

and Payment

Permit Listing

Customer Information - Please click to display

Customer ID: 13758
 Name: TESTA GREG
 Mailing Street Addr: 300 SHEA DR
 Mailing City: CHESAPEAKE
 Mailing State: VA
 Mailing Zip: 23320
 Phone Nbr: 7573826658
 Current Value: 0

Receipt Number: 17793
 Payment Confirmation Number: 5110

Click on the Show Permit button to show the

Description	
Permit:P10020170	Show Permit
Permit:00	Show Permit

Economic Development :: Education :: eServices :: Jobs ::

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Oxford International

IBM i – Enterprise Modernization



IBM i/Modernization and Solutions

- Seamless integration of Web2.0 and SOA functionality with legacy applications.
 - Result: low cost, low risk, manageable, incremental legacy replacement.
- Platform simplification through consolidation, application independence and deployment target flexibility.
- Consolidation of skill silos to achieve cross platform development and improve productivity.
- Easy-to-learn transition path for valued RPG and Cobol developer experts, people who know the business process.
- Removal of middleware and platform complexities required of languages such as Java.
- Design recovery, refactoring and migration alternatives to complement EGL for software development and replacement

“There is no ‘magic bullet’ for resolving the complexities of today’s IT enterprise because they took years, if not decades to evolve. But EGL is as close to a complete solution as we have seen. IT Management & Executives who recognize the need for modern processes for a modern global workforce, and increased value and responsiveness from the IT enterprise should seriously evaluate EGL.”

Steve Norton, President of Oxford International.

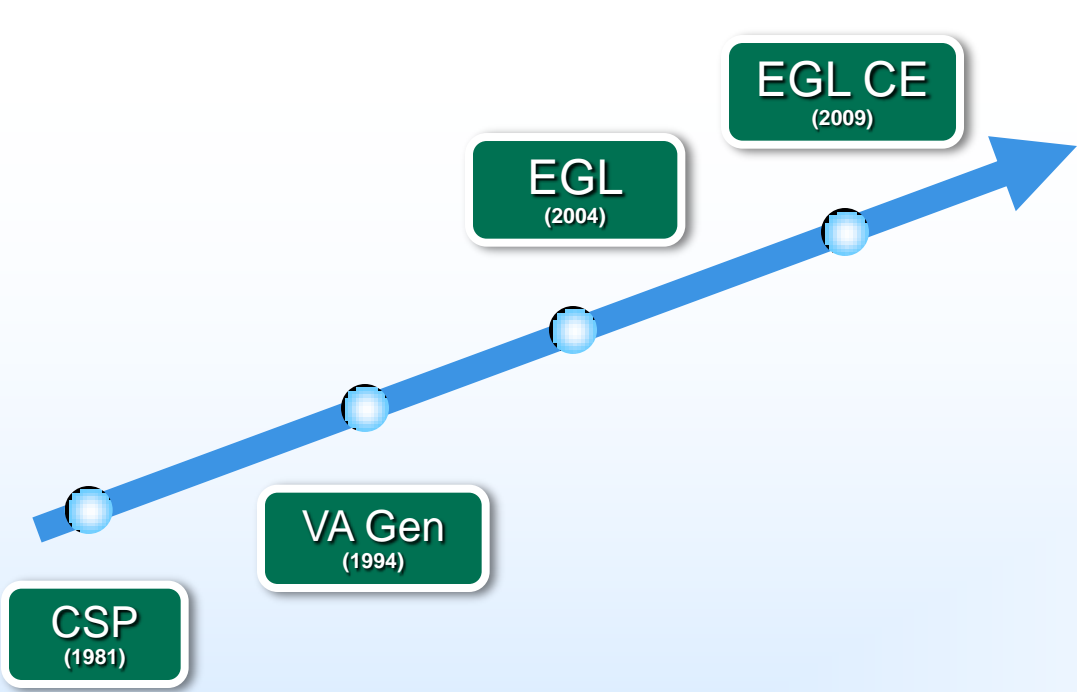


Observations

- The Eclipse/RBD platform is easy to learn and allows for various useful views (data, Rich UI preview, design, etc.)
 - ▶ This allowed us to develop and debug our application in a highly-efficient manner.
- The design view was useful early on to help us with the new syntax, but we quickly “outgrew” the design view and usually coded free form
 - ▶ The EGL syntax is much simpler than Java and more intuitive.
- The web services explorer was a useful tool for quickly debugging and deploying new services as they were created.
- The EGL café and forum are great resources to go to for help and advice
 - ▶ Many times I found the answers to questions that I had just by searching this site.



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



- 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



Read the project proposal:
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/cafe/community/egl/ce>



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 8

Up to 2 hours of instruction per day

3 to 5 hours of independent hands-on per day

Register today!

<http://www-949.ibm.com/software/rational/education/DOC-3358>

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/eglcfe>

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!

The screenshot shows the EGL Café website. At the top, there's a navigation bar with links for Café, Resource Library, Forums, Blogs, Hubs, Products, and Partners. Below this, there's a section for announcements with three items: 'Explore the EGL Gallery!', 'We want to hear your Voice!', and 'ISV Summit'. The 'Welcome to the EGL Café' section features three large buttons: 'Share' (with a double-headed arrow icon), 'Download' (with a download icon), and 'Learn' (with a lightbulb icon). Below this, there are two featured content boxes. The first is 'Real Estate Demo' with a description and a small image of a real estate application. The second is 'Dojo Widgets for EGL Rich UI' with a description and a small image of a widget.

Questions





www.ibm/software/rational

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