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Modern Eclipse based Development Environments for z/VSE

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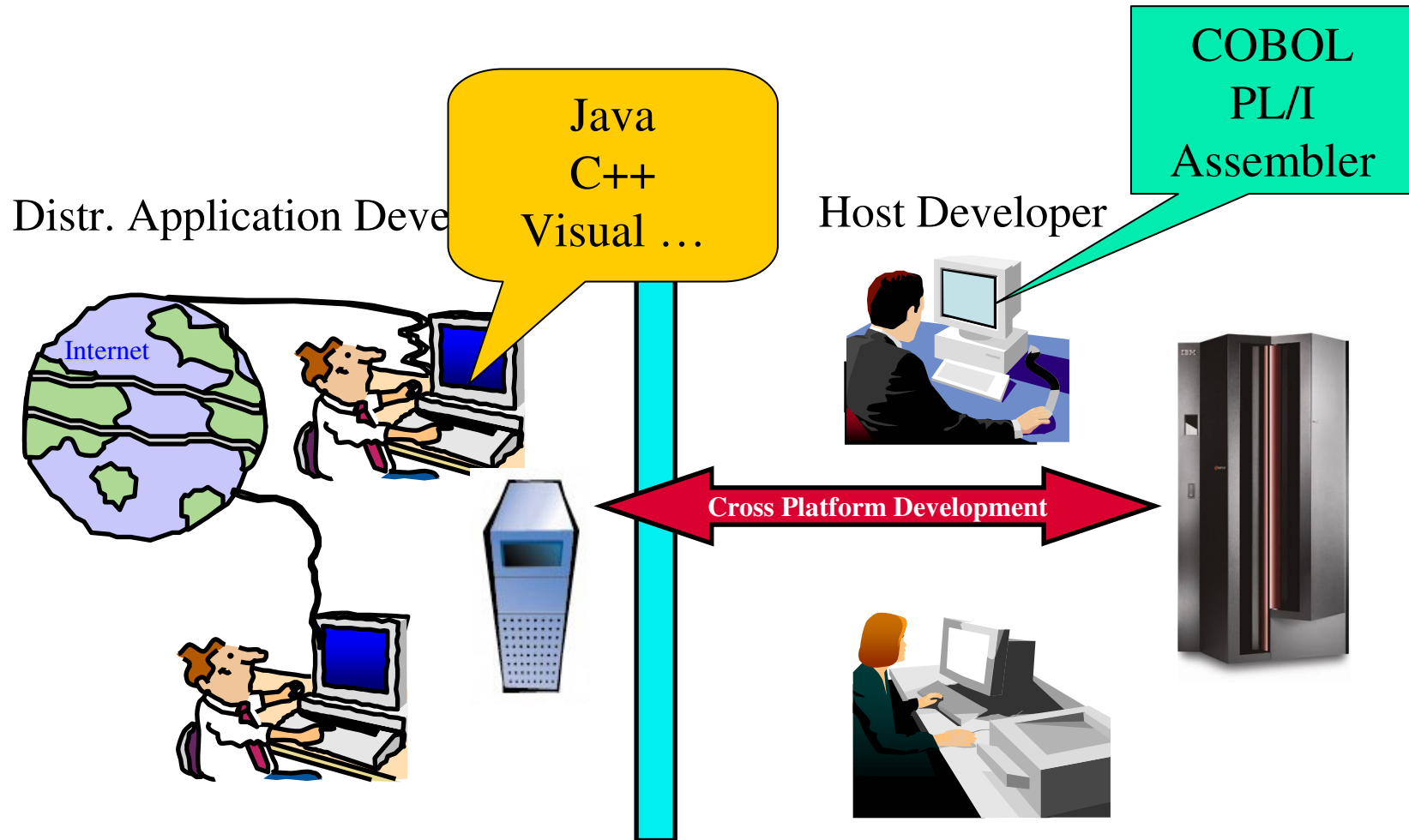
Development objectives !!!

- Tools for managing existing z/VSE source code and changes
 - COBOL, ASM, PL/I, C, 4GL Languages
 - increased productivity for changes and new development
 - flexibility in versioning
 - effective group development control

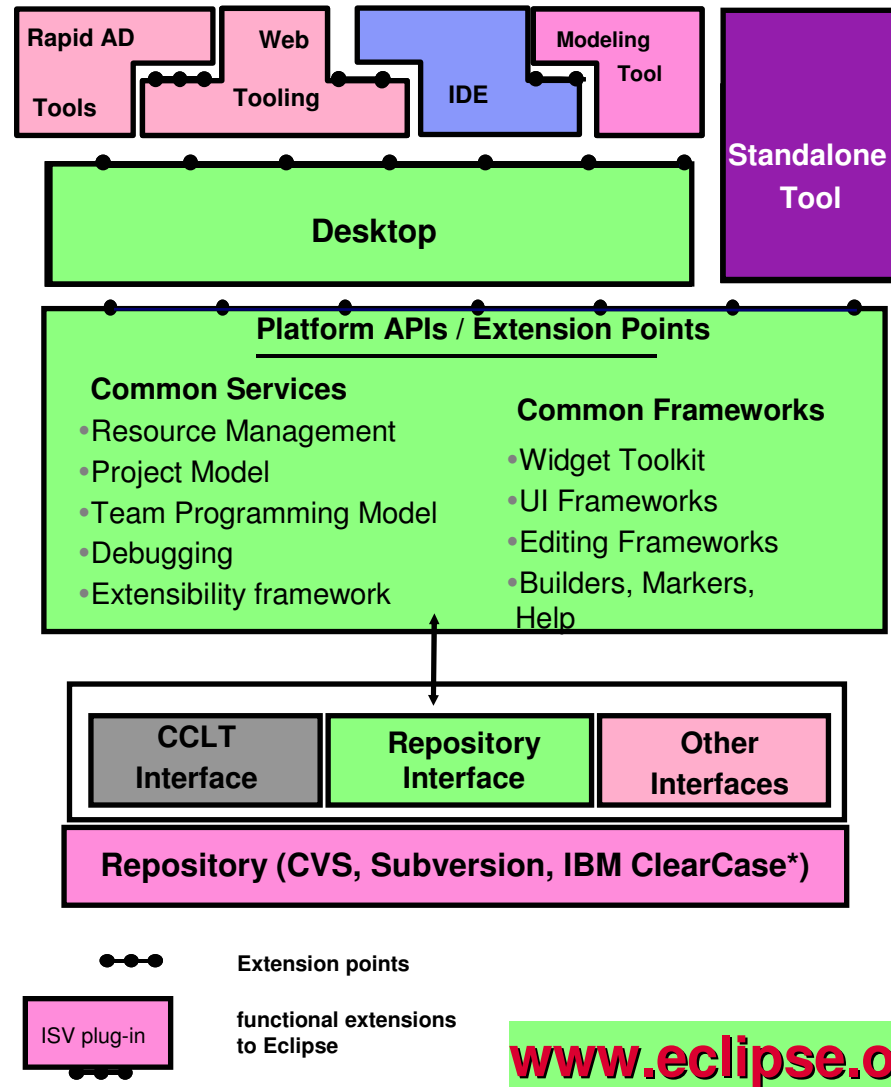
- Develop for multiple platforms
 - common framework for the enterprise instead of multiple unique platform dependent tools
 - same basic tool set for open systems and mainframe

- Open source based technology
 - tools that students know from school and university communities
 - help new developers adapt to the mainframe

'Distributed' Development Landscape...



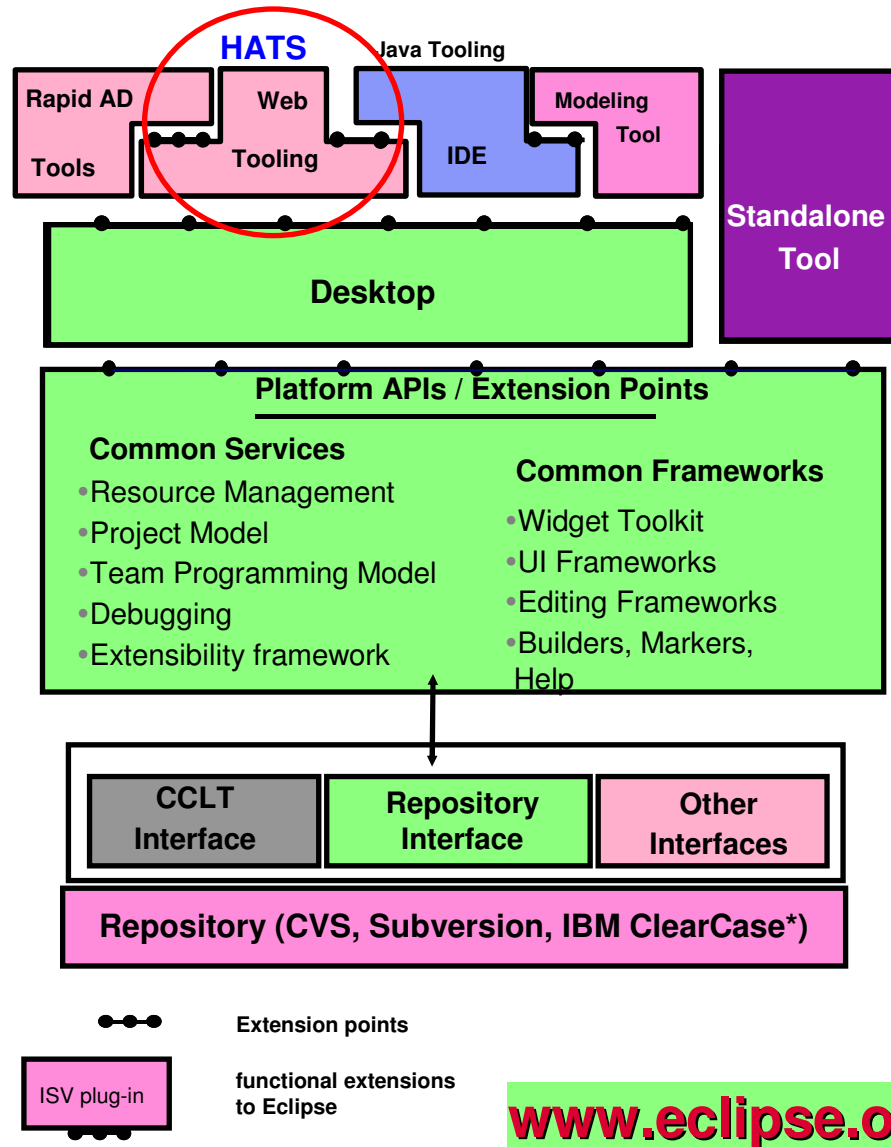
Eclipse – the open Standard for application development



What is Eclipse about:

- Open source development framework
 - with modern Editors
 - syntax help & check
 - semantic check
- Centralized source code maintenance
 - entire source code in central Repository
 - cross platform project administration
- Versioning software interface
 - CVS, Subversion, or IBM ClearCase
 - automatic Workgroup-control
 - i.e. development groups, system group
- Open for ISVs development Plug-Ins
 - **Integrated Development Environments (IDE)**
 - for System z (RDz)
 - for Java, COBOL, PL/I, ASM,C
 - Application analysis and optimization
 - Analyze the applications and workflows with graphical correlations
 - IBM HATS Development Plug-In
 - develop new front-ends to 3270 applications
 - IBM EGL development for z/VSE (RBD)
 - follow-on to Visual Age Generator

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www.eclipse.org

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 - Analyze the applications and workflows with graphical correlations
 - **IBM HATS Development Plug-In**
 - develop new front-ends and GUIs to existing 3270 applications
 - IBM EGL development for z/VSE (RBD)
 - follow-on to Visual Age Generator

Host Access Transformation Server (HATS)

- A Web-to-host integrator, HTML emulator ...
- rules-based transformation engine, application integration ...
- converts green screens to **graphical user interfaces in web applications**
- improves ease-of-use of host applications.

The image illustrates the HATS architecture. On the left, a terminal window shows the original host application's output, which is a text-based report. On the right, a web browser window shows the transformed web application, which is a graphical user interface. The web application includes a navigation menu, a search bar, and a main content area with an 'Inventory Table' and a 'Delivery Schedule' calendar.

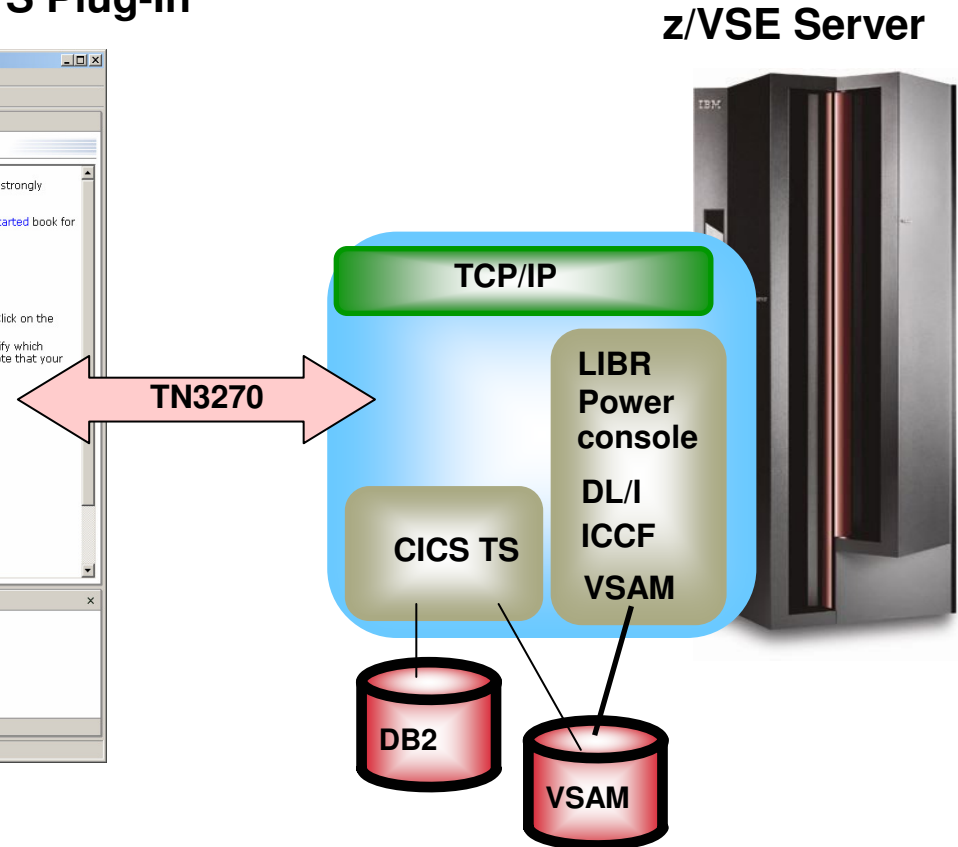
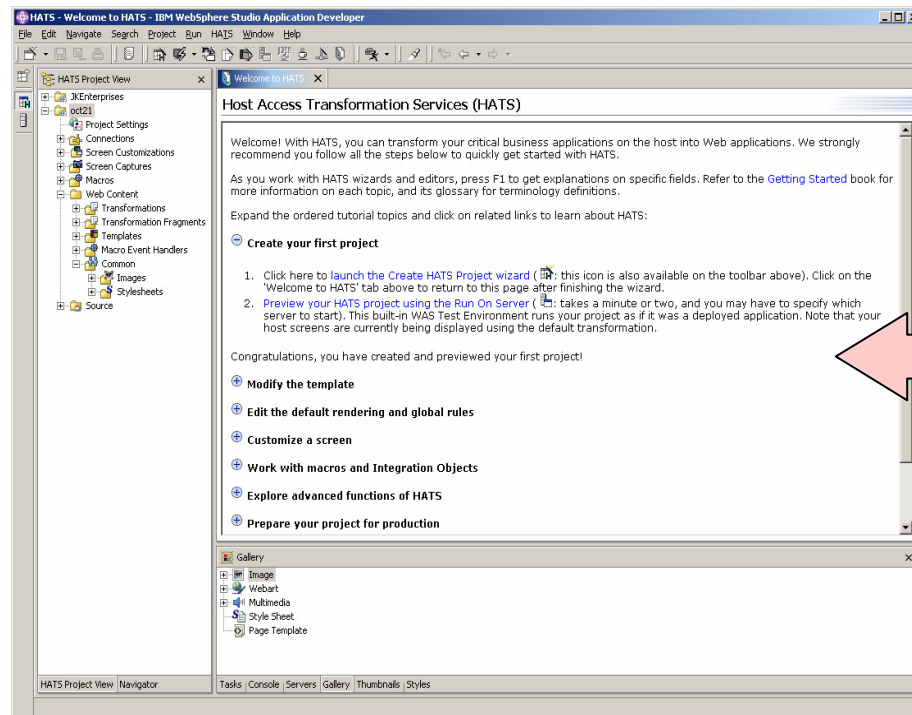
| Part Number | Part Name | Quantity |
|-------------|-----------------------|----------|
| 000001 | Baseball glove | 35 |
| 000002 | Catcher's mit | 20 |
| 000003 | Baseball - 1 doz. | 40 |
| 000004 | Baseball bat | 46 |
| 000005 | Football | 33 |
| 000006 | Basketball | 25 |
| 000007 | Tennis balls - 1 doz. | 41 |
| 000008 | Golf balls - 1 doz. | 27 |
| 000009 | Ice Skates | 17 |

Benefit: Easily extend existing applications to the web

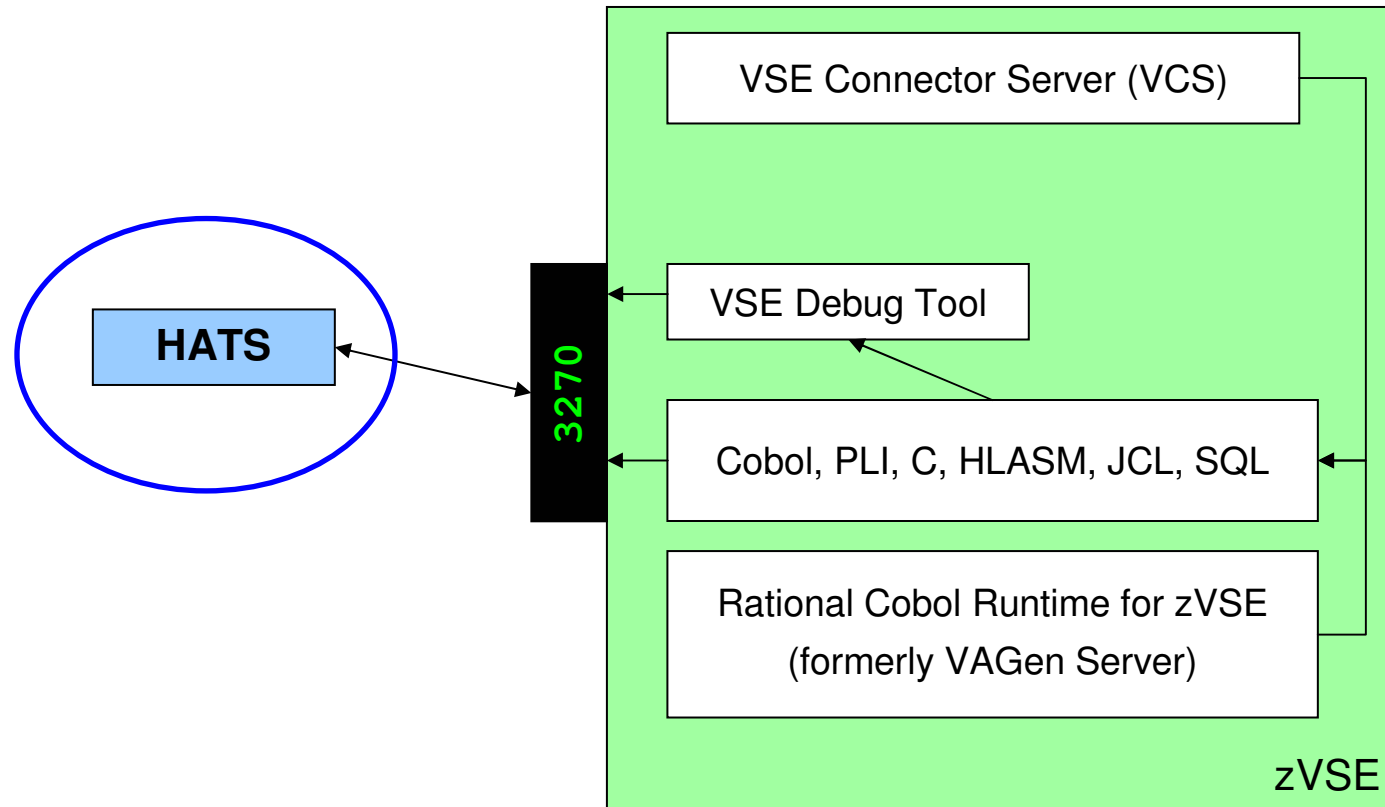
Modernize Existing Applications with HATS

(2) Integrate existing applications in Web applications – in Java

Rational Application Development + HATS Plug-In



- **Application-Development – in Java** (i.e. HATS Studio or Eclipse)
- The new application accesses unchanged VSE application and data
- the new application is a web application using internet technologies



Web application for z/VSE applications with 3270 interface

HATS Advantages:

- Combine / Integrate

```

HodConn:localhost:localhost:server1:ubsdemo.ear#1
SC4103      Check Entitlement by Customer number
5/16/02    10:13:31

Support Center/400 library . . . . . DEMOBOX20

Type choices, press Enter.

Customer number . . . . .
Location code . . . . .
Support Center/400 problem number . . . . .
Associated problem . . . . .

F2=Search Customer database   F3=Exit   F6=Create profile   F10=Messages
F12=Cancel                   F14=Inventory search  F20=Support services
  
```

```

HodConn:localhost:localhost:server1:ubsdemo.ear#5
200      Search Results

For a record, press a function key -or- type an Action Code and press Enter.
A=Address   B=Backup   C=C-list   D=Dept title   F=Feedback
I>Show Ids  O=ObjResp (press)  R=Calendar  L=Local data  O=Update/Open
P=Phone    R=Reps-To-All  T=Te-list  U=Pages-Chain  U=Low record

Columns 42 to 61 of 69
AREAA04 AREALL ASSIGNED ATLANTA ATLA00 AUSTIN BETHESDA BOCA BOULDER BURLINGOT
CHARLOTT CHICAGO CT DALA00 DALLAS DAYTON FISHKILL ISSCA00 KP LEX LOTUS LOUW02
Name          Act  Tie-line EmpSt  Node      User ID  Mail
Carter-Willis, A. P. (Antoinette)  -  596-3739  Reg  IBMUSM25 ACARTERW  WEZA1
Willis Jr, Albert F. (Al)         -  799-7224  Reg  IBMUSM24 AFWILLIS  B-HAM
Willis, Al L.                     -  293-2768  Mgr  IBMUSM08 ALW883  P524
Willis, Andre R. (Dre)           -  888-5081  Sup  IBMUSM22 AWILLIS  H07R1
Willis, Andy B.                  -  419-1518  Reg  IBMUSM49 ANDYWILL  022D
Willis, Art *CONTRACTOR*         -  000-0000  Contr IBMUSM38 AWILLIO  B676/C
Willis, Arthur W. (Wayne)        -          Reg  IBMUS  WILLISW  na

Command ===>
F1=Help  F2=Set  F3=Edit  F4=Send note  F5=Reps-To-All  F6=Show dept/team
F7=Backward  F8=Forward  F9=Command  F10=Actions  F11=Dist list  F12=Cancel
  
```

```

09/23/2003 02:21 PM <DIR>  Wollitess
11/28/2003 02:23 PM <DIR>  videos
01/05/2004 09:24 AM <DIR>  vslick
03/03/2004 10:40 AM <DIR>  WINDOGS
10/16/2003 09:26 AM <DIR>  win_jce_121
01/05/2004 04:42 PM <DIR>  wad51
04/23/2003 05:21 AM <DIR>  wpdrive
03/03/2004 10:40 PM 14,496 Mpamin.log
01/03/2004 14:15:01 bytes 4,175,691 bytes
03 Dir(s) 22,888,359,792 bytes free

C:\Documents and Settings\Administrator_
  
```

Market Update

| | | |
|------------|---------|-------|
| Dow Jones | 9959.71 | 37.85 |
| NASDAQ | 1918.26 | 13.61 |
| S&P 500 | 1062.24 | 3.19 |
| 30 Yr Bond | 5.191 | 0.04 |

Data from 5250 Source

SC4103 Check Entitlement by Customer number 5/16/02 10:13:31

Support Center/400 library DEMOBOX20

Type choices, press Enter.

Customer number

Location code

Support Center/400 problem number

Associated problem

Login

UserName

Password

Go

→ First Time

→ Enroll

→ Tour

Highlights

- Think Year-End Planning
- JK Funds reports third quarter net profit of \$2.243 million
- Read the NASD's June 25, 2003 Investor Alert Regarding Class B Mutual Fund Shares
- Read the NASD's Investor Alert Regarding Mutual Fund Breakpoint Discounts
- View Current CD Rates

Career Opportunities

- Financial Advisor Careers
- Career Opportunities

Data from 3270 Host

| Name | Phone | Type | Node | User | Mail |
|-----------------------------------|----------|-------|----------|----------|--------|
| Carter-Willis, A. P. (Antoinette) | 596-3739 | Reg | IBMUSM25 | ACARTERW | WEZA1 |
| Willis Jr, Albert F. (Al) | 799-7224 | Reg | IBMUSM24 | AFWILLIS | B-HAM |
| Willis, Al L. | 293-2768 | Mgr | IBMUSM08 | ALW883 | P524 |
| Willis, Andre R. (Dre) | 888-5081 | Sup | IBMUSM22 | AWILLIS | H07R1 |
| Willis, Andy B. | 419-1518 | Reg | IBMUSM49 | ANDYWILL | 022D |
| Willis, Art *CONTRACTOR* | 000-0000 | Contr | IBMUSM38 | AWILLIO | B676/C |
| Willis, Arthur W. (Wayne) | | Reg | IBMUS | WILLISW | na |

Results from VT Data Source

Query Directory: c:\

93 Dir(s) 22,888,359,792 bytes free

14 File(s) 4,175,691 bytes

My Computer MS-DOS Prompt Shortcut to Acrobat

EXTRA! A - Session1

EXTRA! A - Session1

File Edit Transfer Options Connection Macro Window Help



MASTER INDEX INQUIRY

```

LAST NAME: smith????????????????????????????????????????? MID: ?
   FIRST: John????????????? MIDDLE: TITLE: ?
   AKA: ?
   AKA: NAME CNT:
   DATE OF BIRTH: SEX: TELEPHONE:

```

```
ADDRESS: ADDR CNT:
```

```

DATE OF DEATH:
STATE ID: SSN:
EMPLOYER NAME:
COMMENTS:

```

```
RELATED CASE ID CASE TITLE NO. OF REL. CASES:
```

- | | | |
|---------------------|--|----------------|
| PA1 - PAGE FORWARD | PF2 - RESTART INQUIRY | PAGE: OF |
| PA2 - PAGE BACKWARD | PF3 - AKA SUMMARY | OPID: |
| | PF4 - RETURN TO SUMMARY | MOD DATE: |
| | JSH207 - MID RECORD DOES NOT EXISTS. | TIME: |
| | JSH208 - SET ADDITIONAL SEARCH PARAMETERS. | |
| | JSH209 - CANCEL TASK WITH CLEAR KEY. | |

JSHIM51



Hawai'i State Judiciary

Hawai'i State Judiciary's Public Access to Court Information

Search Option #1 - Enter the full case ID below.

Case ID

Search

Search Option #2 - Search on a person or business' name.

Last or Business Name

First Name

Search

Search Option #3 - Choose from the selections below and enter the case number as indicated. (Suffix is optional)

Circuit

Case Type

Year

Century

Case Number

Suffix

Oahu

Civil

2000's

01

Search

- Civil
- Circuit Court Criminal
- District Court Regular Civil Claim
- District Court Small Civil Claim
- District Court Temporary Restraining Order
- Equity
- Family Court Appeal
- Family Court Criminal
- Divorce
- Family Court Domestic Abuse
- Family Court Miscellaneous
- Guardianship
- Land (after 1997)
- LAW - initiated prior to statehood w/ activity after 1984
- Mechanic's and Materialman's Lien
- Probate
- Small Estate (before 1995)
- Small Guardianship (before 1995)
- Special Proceedings
- Special Prisoner Proceedings

Print

Help

Exit

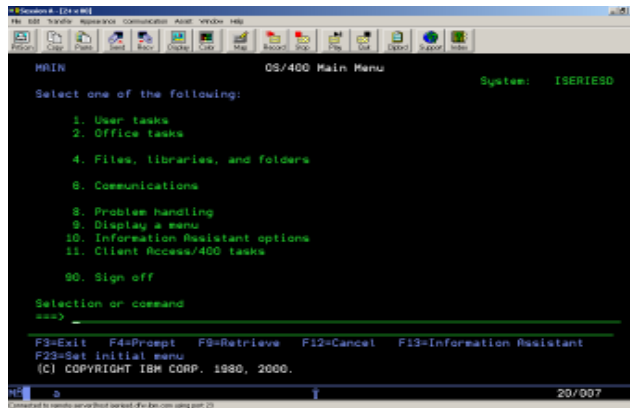
Windows taskbar icons: Start, Internet Explorer, Netscape

Windows taskbar: Address bar (ess), Go button, taskbar icons (Se..., C..., jy..., zill..., Ho...)

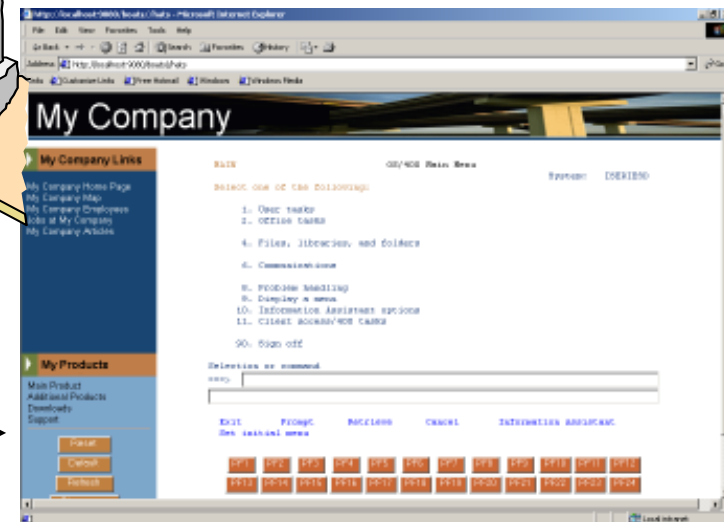
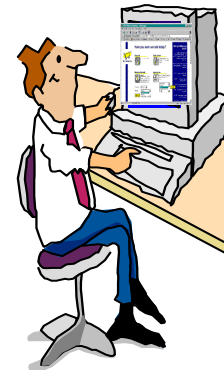
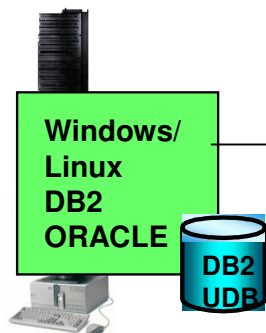
Windows taskbar: System tray (99% battery, volume, network, clock 3:16 PM)

Application Integration with Host Access Transformation Services (HATS)

- Not invasive
- No software download to the client
- Web Services on the fly
- Integration with distributed applications



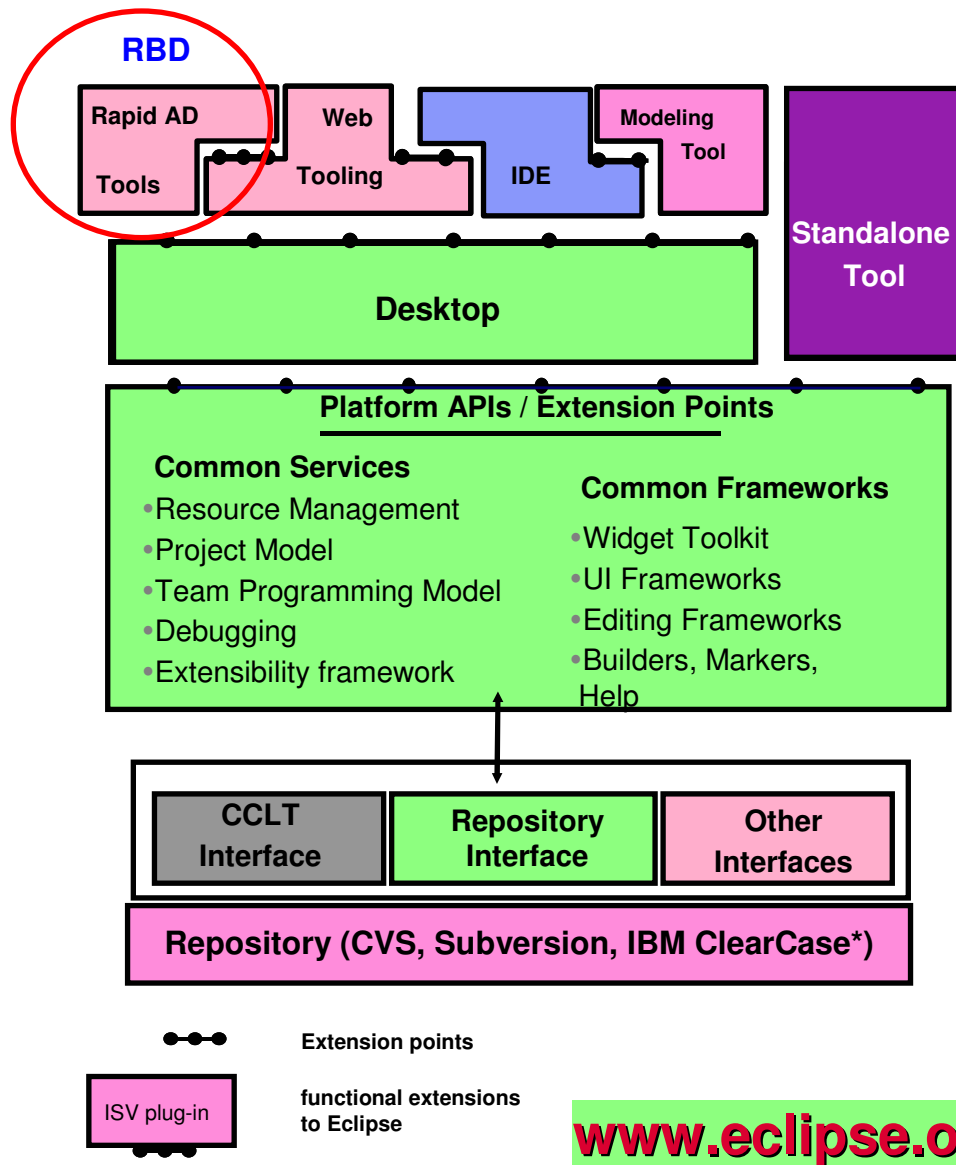
3270 or 5250
data stream



HTML in a Browser

Screen transformation rules running on
WebSphere Application Server

Eclipse – the open Standard for application development



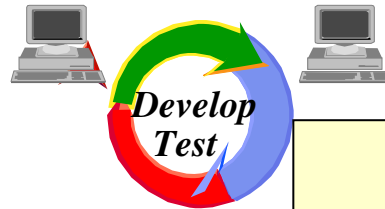
www.eclipse.org

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 - **EGL Plug-In for zVSE**
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(2) Cross Platform Solution development Approach with 4GL Language (EGL)

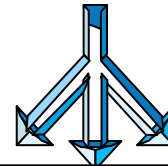
**Rapid
Development**



IBM 4GL history:
CSP (~1981) -> VAGen (~ 1994) -> EGL (~2003)
Migration-Options available ...

Generation

Generate

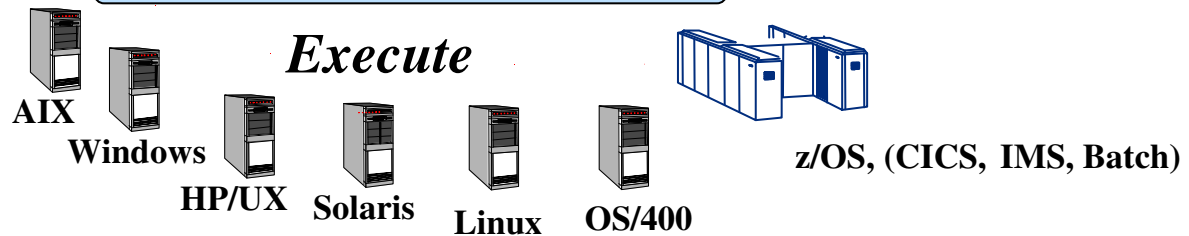


GUI, Java, HTML, C++, COBOL, PL/I

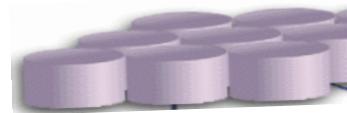
z/VSE(CICS, Batch)

Execution

Execute



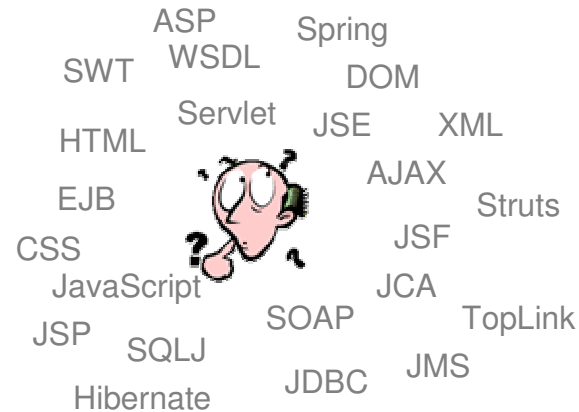
- Multiple platforms
- Client /Server Applications
- Java applets/servlets or standalone
- Multiple database/file support apps



DB2 UDB VSAM ODBC
Oracle DLI, IMS/DB

Why EGL?

Because building applications today is not easy



- Learn and master myriads of
 - programming languages and semantics
 - middleware interfaces
 - programming paradigms and styles
 - frameworks and libraries
- Constantly emerging new technologies
- Code at a more abstract and simpler level
- Easy to learn, modern and comprehensive language
- Keeps up with emerging technologies
- Inter-operates seamlessly with legacy

The power of the Language

Simple and familiar.... yet robust and complete



- Rich data types
 - Primitive
 - Simple (int, string, boolean, etc.)
 - Complex (any, arrays, dynamic arrays, dictionaries, array dictionaries, etc.)
 - User defined Data Parts
- Keywords
 - Case, if-then-else, while, for loop, for loop cycling through a database result set, etc.
- High power language capabilities
 - Automated Casting (e.g. using AS operator)
 - Mixing data types in assignments and expressions
 - Exception handling
- Rich libraries of built-in functions
 - Math, string, date/time, system, i5/OS objects APIs
- Robust integration with existing investment or access to low level APIs
 - Call RPG, COBOL, C, etc.
 - Full Java interoperability
 - Invoke Java from EGL (map Java classes with EGL External Types)
 - Invoke EGL from Java

```
hello.egl x
1 // Hello World basic program
2
3 program hello type BasicProgram
4
5 // Data Declarations
6 name string = "World";
7
8 function main()
9     writeStdOut("Hello " +name);
10 end
11
12 end
13
```

The power of Abstractions and Declarative



■ Data access:

- “Records” provide access to:
 - SQL, Indexed, Relative, Serial, DL/I, Service data, Message Queues
- Common Verbs for data access (**Get, Add, Replace, Delete**).
- Allows complete access to SQL statement if needed.
- Common Error Handling.

```
*sampleProgram.egl x
function allLoans()
  loans LoanRec[];
  get loans;
end
```

■ Remote Invocation

- Call COBOL, RPG, C, Java.
- Linkage information separated from code.
- Data mapping, protocol invocation all resolved at runtime, NO code necessary

```
*sampleProgram.egl x
function callHelloWorldOniSeries()
  salutation char(30);
  call helloworld salutation;
end
```

■ User Interface:

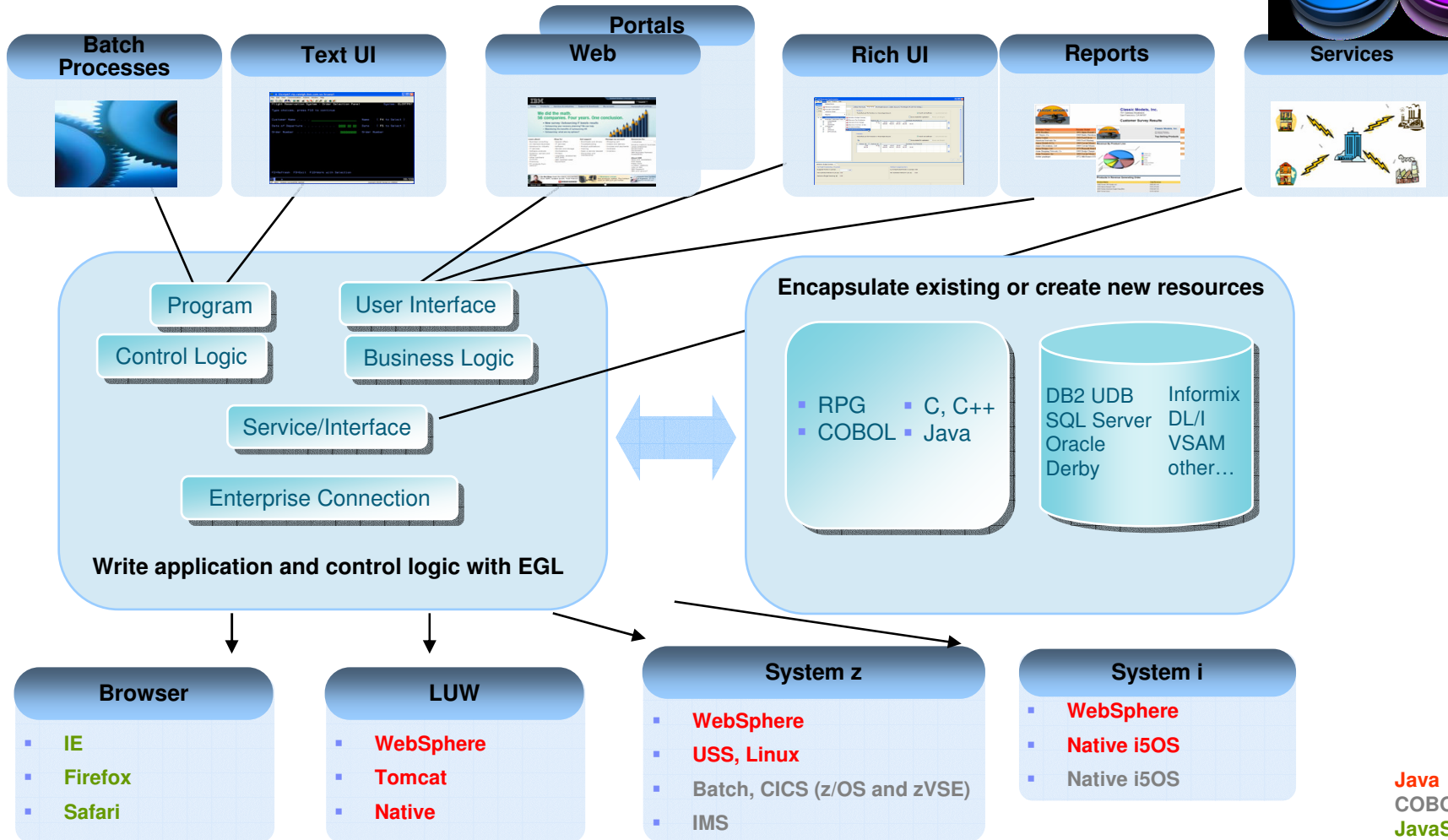
- EGL “handlers” hide complexities of
 - Web (JSF) UI
 - Reports (BIRT)
 - Portlets
 - Rich Web (Ajax)

```
*sampleProgram.egl x
DataItem SSN Password char(9) {
  validatorFunction = "ValidateSSN()",
  displayUse = secret,
  pattern = "XXX-XX-XXXX",
  displayName = "Social Security No",
  inputRequired = yes
end
```

Validation/Editing Rules:

- Via properties in “Data Items.
- Define formatting & validation rules in a common place.
- Reuse data items for Records, screens, web pages, reports.

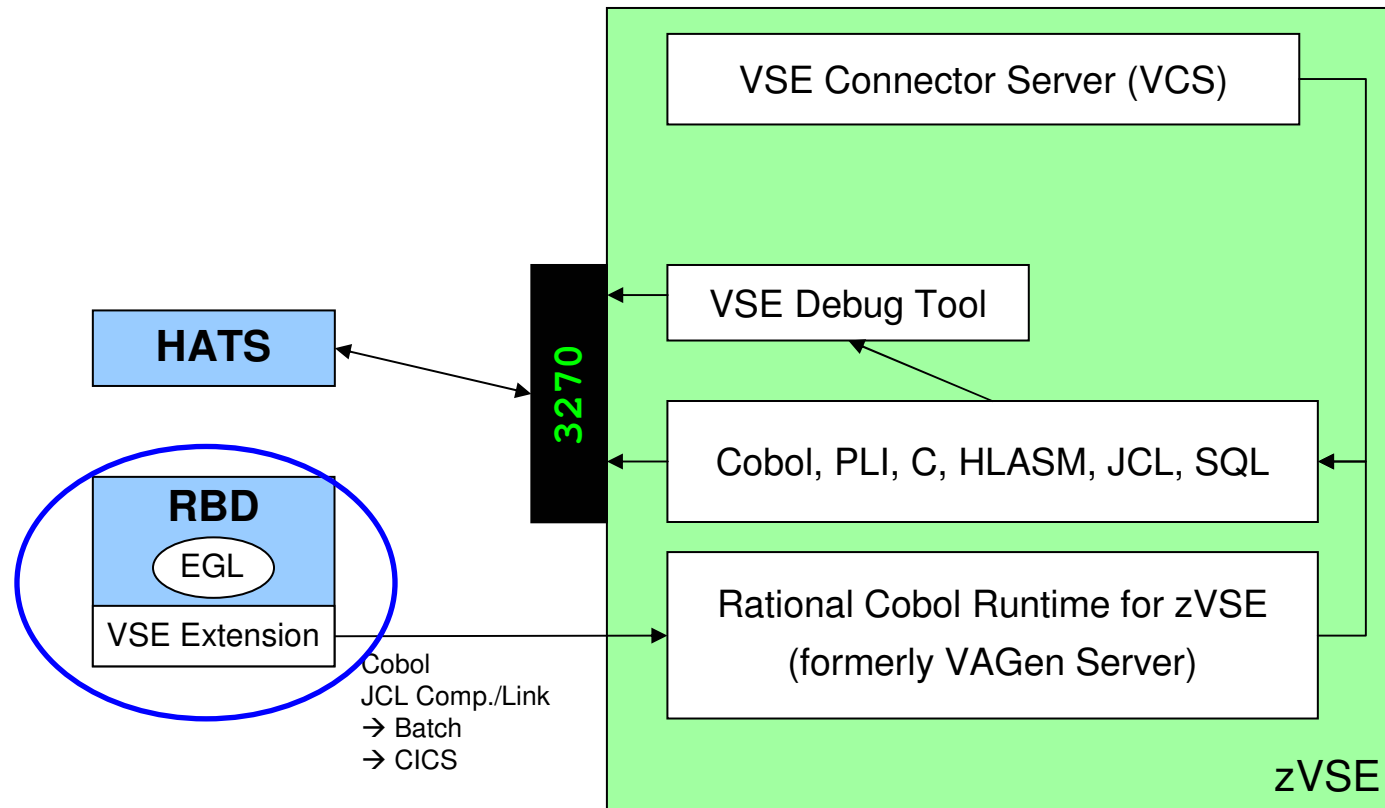
Respond to Broadest Application Needs



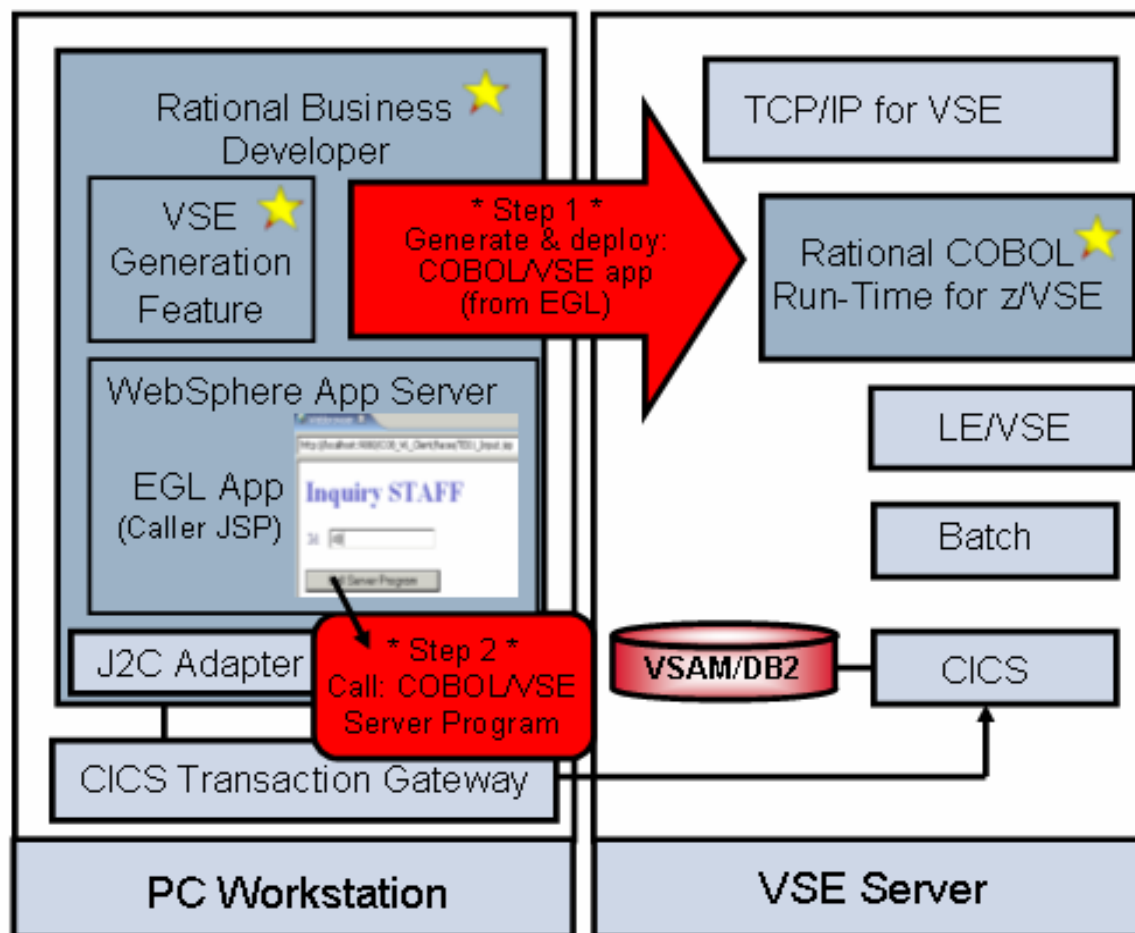
Java
COBOL
JavaScript

Modern development environment for z/VSE with RBD - IBM Rational Business Developer

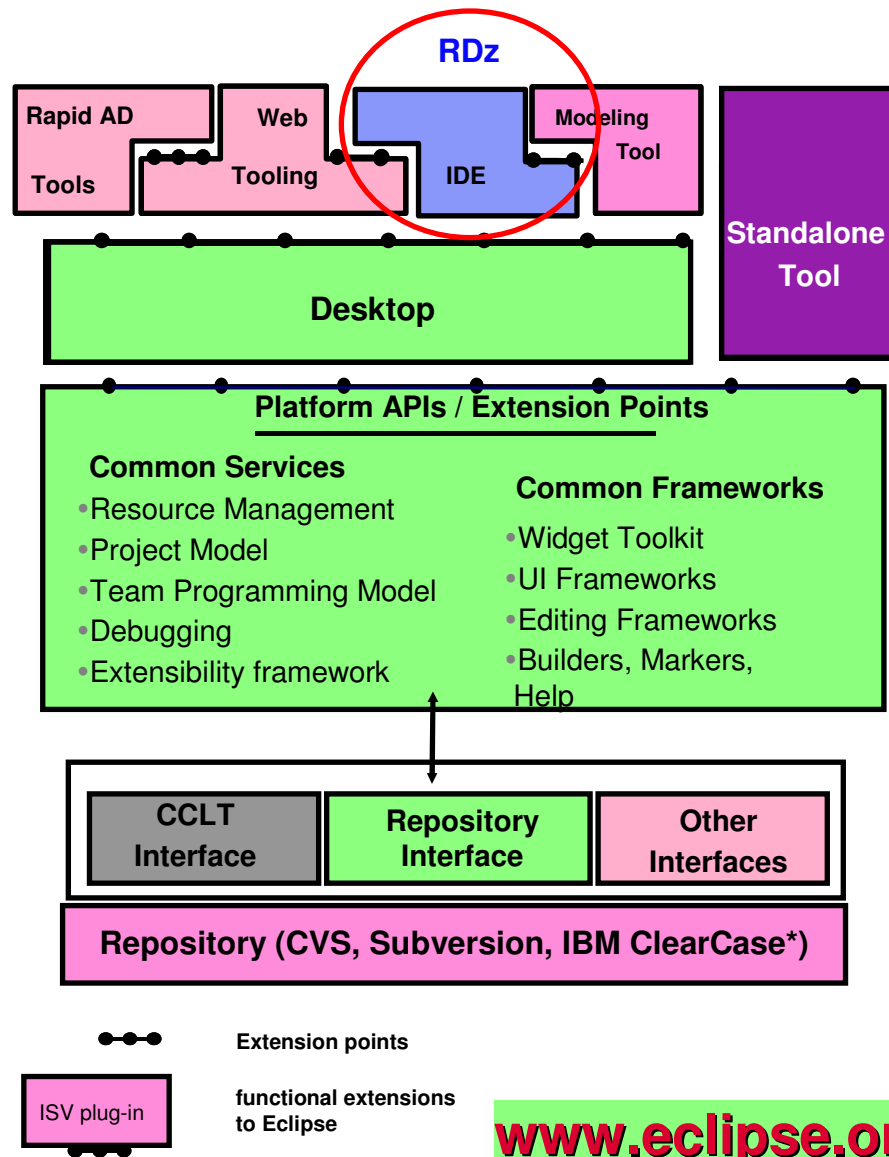
- Since December 2008, continued 4GL support for z/VSE is available:
 1. z/VSE host component **IBM Rational COBOL Runtime for z/VSE (V7.5)**
(replaces the Visual Age Generator Server for VSE)
 2. PC tool for development: **IBM Rational Business Developer (RBD V7.5.1)**
and the associated components
 - **IBM Rational Business Developer Extension for VSE V7.5.1**
 - COBOL Code generation for z/VSE
 - Generation for System z (z/OS)
- J2C-Tools (Java EE Connector)
- **IBM CICS Transaction Gateway** (optional – for CICS access only)



RBD – functional view (Generate COBOL applications on z/VSE using EGL)



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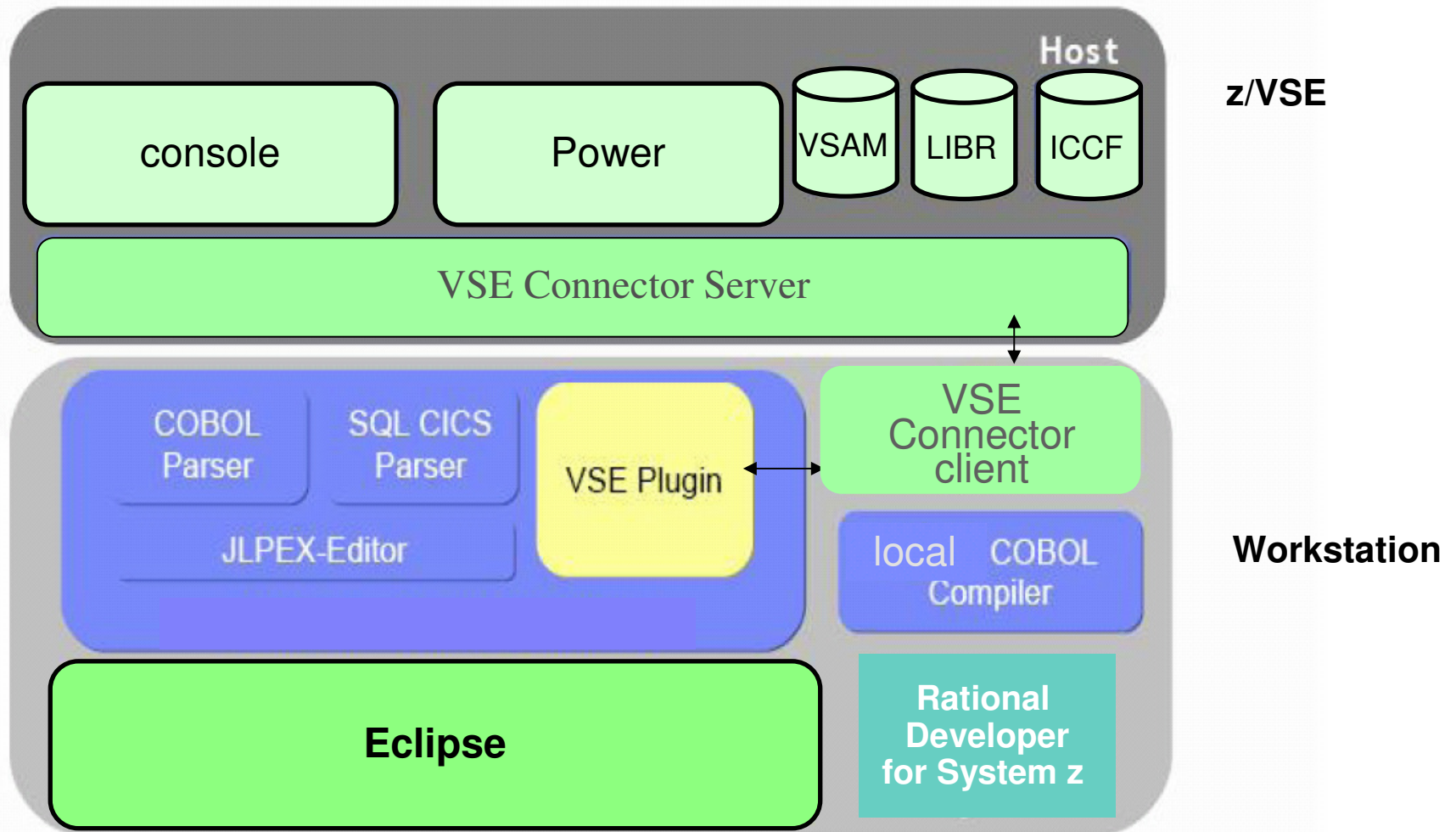


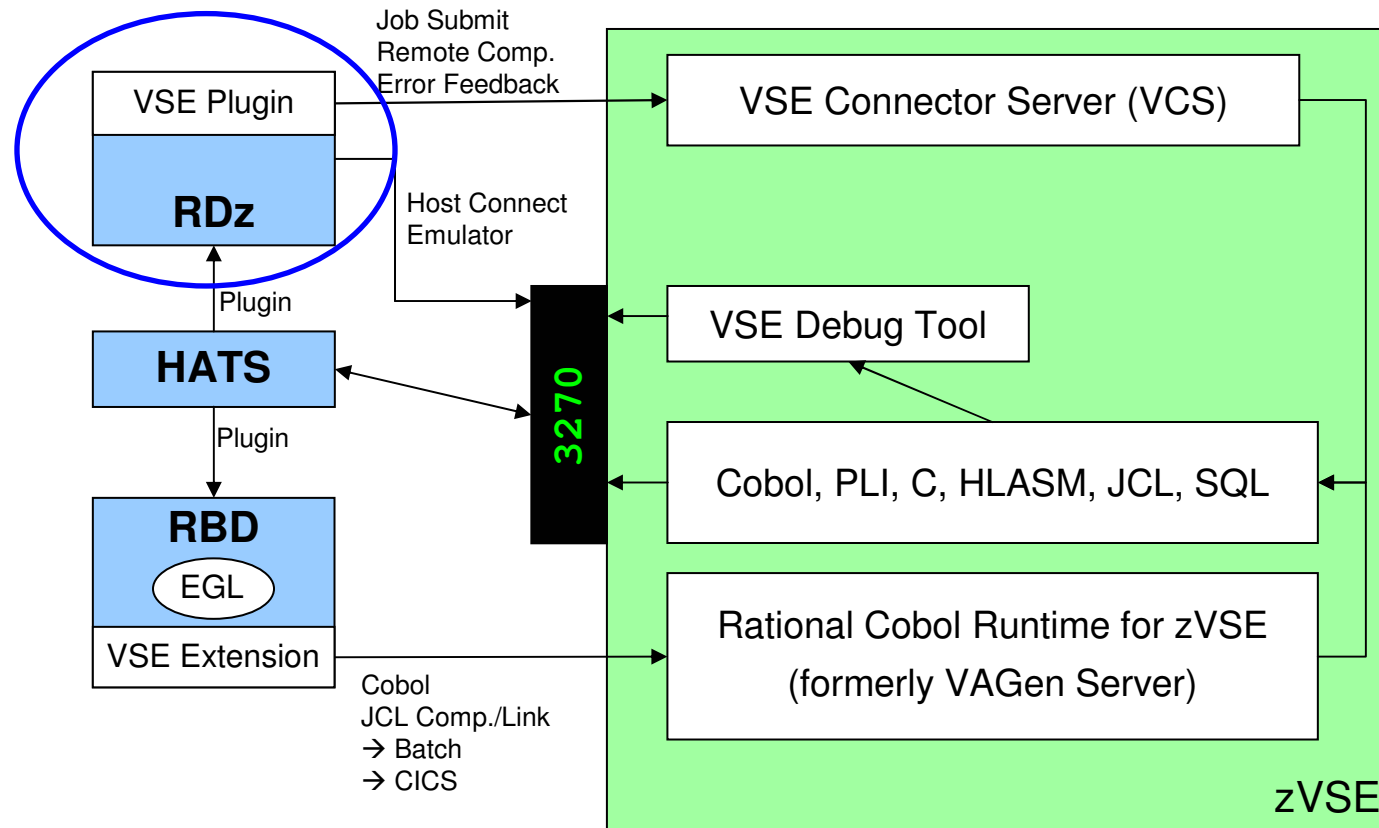
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The IBM Development environment for the enterprise
Rational Developer for System z (RDz 7.5)
 with z/VSE Development Plug-in for RDz 7.5





RDz functions for z/VSE and z/OS development

- Enhanced Eclipse tools with mainframe development functions
 - special editor functions for mainframe languages
 - local COBOL compiler
 - support for COBOL, ASM, PL/I, C
 - editor for CICS BMS maps
 - support for SQL generation
 - functions for remote processing and mainframe deployment

- Integrated test environment
 - full functional test within the development environment
 - debug possibility via z/VSE emulation window

Rational Developer (RDz) in z/VSE perspective

The screenshot shows the IBM Rational Developer (RDz) interface in z/VSE perspective. The main editor window (4. Editor) displays COBOL code for a program named PRINTAPP. The code includes sections for Identification, Data, Working-Storage, Linkage, and Procedure Division. The Procedure Division uses RECVDPARMS to move data from input to output. The VSE System View (2. View) on the right shows the project structure, including VSE Lab, VSE Workshop, and VSE Mainframe. The Outline View (5. Outline View) on the left shows the hierarchical structure of the program. The VSE Console (6. VSE Console) at the bottom displays a MAP command output showing memory usage for various areas.

1. Perspective

2. View

3. Projects

4. Editor

5. Outline View

6. VSE Console

| MAP | SPACE | AREA | V-SIZE | GETVIS | V-ADDR | UNUSED | NAME |
|---------|-------|--------|--------|--------|---------|--------|-------------|
| AR 0015 | S | SUP | 716K | | 0 | | \$\$A\$SUPI |
| AR 0015 | S | SVA-24 | 1888K | 1748K | B3000 | 768K | |
| AR 0015 | 0 | BG V | 1280K | 4864K | 500000 | 45056K | |
| AR 0015 | 1 | F1 V | 1024K | 4096K | 500000 | OK | POWSTART |
| AR 0015 | 2 | F2 V | 2048K | 49152K | 500000 | OK | CICSICCF |
| AR 0015 | 3 | F3 V | 608K | 14768K | 500000 | OK | VTAMSTRI |
| AR 0015 | 4 | F4 V | 2048K | 18432K | 500000 | OK | |
| AR 0015 | 5 | F5 V | 768K | 256K | 500000 | OK | |
| AR 0015 | 6 | F6 V | 256K | 256K | 500000 | OK | |
| AR 0015 | 7 | F7 V | 1024K | 19456K | 500000 | OK | TCPIP00 |
| AR 0015 | 8 | F8 V | 2048K | 49152K | 500000 | OK | |
| AR 0015 | 9 | F9 V | 256K | 256K | 500000 | OK | |
| AR 0015 | A | FA V | 256K | 256K | 500000 | OK | |
| AR 0015 | B | FB V | 256K | 256K | 500000 | OK | SECSERV |
| AR 0015 | S | SVA-31 | 7588K | 6748K | 3700000 | | |

RDz in Action : Sunday April 11, at 9:15 in Room U3,

Rational Developer (RDz) in z/VSE perspective

The screenshot displays the IBM Rational Software Development Platform interface for z/VSE. The main window shows a terminal session with the following text:

```

VSE/ESA ONLINE
5609-ZV4 and Other Materials (C) Copyright IBM Corp. 2005 and other dates

      ++      VV  VV  88888  EEEEE
      ++      VV  VV  888888  EEEEE
      ++      VV  VV  88      EE
      ++      VV  VV  88888  EEEEE
      ++      VV  VV  88888  EEEEE
      ++      VV  VV  88      EE
      ++      VV  VV  888888  EEEEE
      ++      VV  VV  88888  EEEEE

Your terminal is A002 and its name in the network is D3800001
Today is 11/09/2007 To sign on to DBDCCICS -- enter your:

USER-ID..... The name by which the system knows you.
PASSWORD..... Your personal access code.

PF1=HELP      2=TUTORIAL      3=TO VM      4=REMOTE APPLICATIONS
                10=NEW PASSWORD
  
```

Below the terminal is a keyboard layout with function keys PF1 through PF12, Enter, PA1, Attn, NewLine, Clear, PA2, SysReq, and NextPad.

The VSE Console window at the bottom shows a table of resources:

| MAP | AR | SPACE | AREA | V-SIZE | GETVIS | V-ADDR | UNUSED | NAME |
|-----|---------|-------|--------|--------|--------|---------|--------|------------|
| | AR 0015 | S | SUP | 716K | | 0 | | \$\$\$SUPI |
| | AR 0015 | S | SVA-24 | 1888K | 1748K | B3000 | 768K | |
| | AR 0015 | 0 | BG V | 1280K | 4864K | 500000 | 45056K | |
| | AR 0015 | 1 | F1 V | 1024K | 4096K | 500000 | 0K | POVSTART |
| | AR 0015 | 2 | F2 V | 2048K | 49152K | 500000 | 0K | CICSICCF |
| | AR 0015 | 3 | F3 V | 600K | 14760K | 500000 | 0K | VTAMSTR |
| | AR 0015 | 4 | F4 V | 2048K | 18432K | 500000 | 0K | |
| | AR 0015 | 5 | F5 V | 768K | 256K | 500000 | 0K | |
| | AR 0015 | 6 | F6 V | 256K | 256K | 500000 | 0K | |
| | AR 0015 | 7 | F7 V | 1024K | 19456K | 500000 | 0K | TCPIP00 |
| | AR 0015 | 8 | F8 V | 2048K | 49152K | 500000 | 0K | |
| | AR 0015 | 9 | F9 V | 256K | 256K | 500000 | 0K | |
| | AR 0015 | A | FA V | 256K | 256K | 500000 | 0K | |
| | AR 0015 | B | FB V | 256K | 256K | 500000 | 0K | SECSERV |
| | AR 0015 | S | SVA-31 | 7588K | 6748K | 3700000 | | |

Callouts in the image identify the following components:

- 1.Perspective**: The overall window title and menu bar.
- 2.View**: The VSE System View tree on the right side.
- 3.Projects**: The z/OS Projects tree on the left side.
- 4.Outline View**: The Outline and Properties windows at the bottom left.
- 5.VSE Terminal**: The main terminal window displaying the VSE/ESA ONLINE session.
- 6.VSE Console**: The VSE Console window at the bottom showing resource usage.
- 7.VSE Terminal**: Another label pointing to the terminal window.

■ Develop a z/VSE project

The screenshot shows the VSE IDE interface. The main window displays a terminal session with the following text:

```

    IESADMS01          VSE/ESA ONLINE
    5609-ZVS and Other Materials (C) Copyright IBM Corp. 2004 and other dates

    ++              ++
    ++  WV  WV  SSSSS  EEEEEEE
    ++  WV  WV  SSSSSSS  EEEEEEE
    ***** ++      WV  WV  SS  EE
    ***** ++      WV  WV  SSSSSS  EEEEE
    **  ++      WV  WV  SSSSSS  EEEEE
    **  ++      WV  WV  SS  EE
    ***** ++      WVW  SSSSSS  EEEEEEE
    ***** ++      WV  SSSSS  EEEEEEE

    Your terminal is A001 and its name in the network is D1080001
    Today is 01/26/2007 To sign on to DEBCCICS -- enter your:

    USER-ID..... =      The name by which the system knows you.
    PASSWORD.....      Your personal access code.

    PF1=HELP      2=TUTORIAL      4=REMOTE APPLICATIONS
                                10=NEW PASSWORD
    USE ONLY THE ENTER KEY OR ONE OF THE KEYS LISTED ABOVE.
    
```

A context menu is open over the terminal, showing options: "New", "MVS Project...", and "VSE Project".

The interface also includes a "z/OS Projects" pane on the left, a "VSE System View" tree on the right, and a "Remote Error List" table at the bottom.

| ID | Message | Se... | Line | Location | Host Name | Date |
|----|---------|-------|------|----------|-----------|------|
| | | | | | | |

The Windows taskbar at the bottom shows the system tray with the date 1/26/2007 and time 4:29 PM, and the taskbar includes the Start button and several open applications.

■ COBOL Syntax checking and highlighting

The screenshot shows the VSE IDE interface with the following components:

- File Explorer:** Shows a project structure with folders like .TmpVseRemote, DEMOVSE, build, BuildOutput, jcl, .project, and files CEEIGZCT.cbl and IGZTMATH.cbl.
- Code Editor:** Displays COBOL code for IGZTMATH.cbl. Line 40 contains a procedure definition for 'PROCEDURE DIVISION'. The code includes several data declarations and a 'MOVE' statement. The word 'DIVI' is misspelled as 'DIVI' in the 'PROCEDURE DIVISION' line, which is highlighted in red.
- Remote Error List:** A table at the bottom shows three error messages:

| ID | Message | Se... | Line | Location | Host Name | Date |
|-----------|---|-------|------|----------------------|-----------|-------------------------|
| IGYPS2106 | IGYPS2106-S "DIVI" was found in the "VALUE" stat... | 2 | 40 | /DEMOVSE/IGZTMATH... | Local | Jan 26, 2007 4:39:27 PM |
| IGYOS4027 | THE SYSTEM OPTION "SYM" IS INTERPRETED AS "... | 0 | -1 | IGZTMATH.C | DEMOVSE | Jan 26, 2007 4:41:09 PM |
| IGYPS2106 | "DIVI" WAS FOUND IN THE "VALUE" STATEMENT. ... | 2 | 40 | IGZTMATH.C | DEMOVSE | Jan 26, 2007 4:41:09 PM |
- Taskbar:** Shows the Windows taskbar with the start button, address bar, and several open applications including Command Prompt, Plug-in Development, VSE - IGZTMATH.cbl, and Paint.

z/VSE local and remote Compile

The screenshot displays the VSE IDE interface. The main editor window shows the following COBOL code:

```

Line 40      Column 81      Insert
--*A-1-B-----2-----3-----4-----5-----6-----7--|-+-----8
02 Condition-Token-Value.          00027000
  COPY CEEIGZCT.                    00028000
03 Case-1-Condition-ID.            00029000
  04 Severity PIC S9(4) BINARY.      00030000
  04 Msg-No PIC S9(4) BINARY.        00031000
03 Case-2-Condition-ID            00032000
  REDEFINES Case-1-Condition-ID.    00033000
  04 Class-Code PIC S9(4) BINARY.    00034000
  04 Cause-Code PIC S9(4) BINARY.    00035000
  Case-Sev-Ctl PIC X.                00036000
  Facility-ID PIC XXX.               00037000
  Info PIC S9(9) BINARY.             00038000
  DIVISION.                          00039000
  .                                    00040000
  .                                    00041000
  .                                    00042000
  .                                    00043000
  5 TO ARG1RS.                        00044000
  MESSAGE LOG' USING ARG1RS, FC, RESLTRS. 00045000
  *****                          00046000
    
```

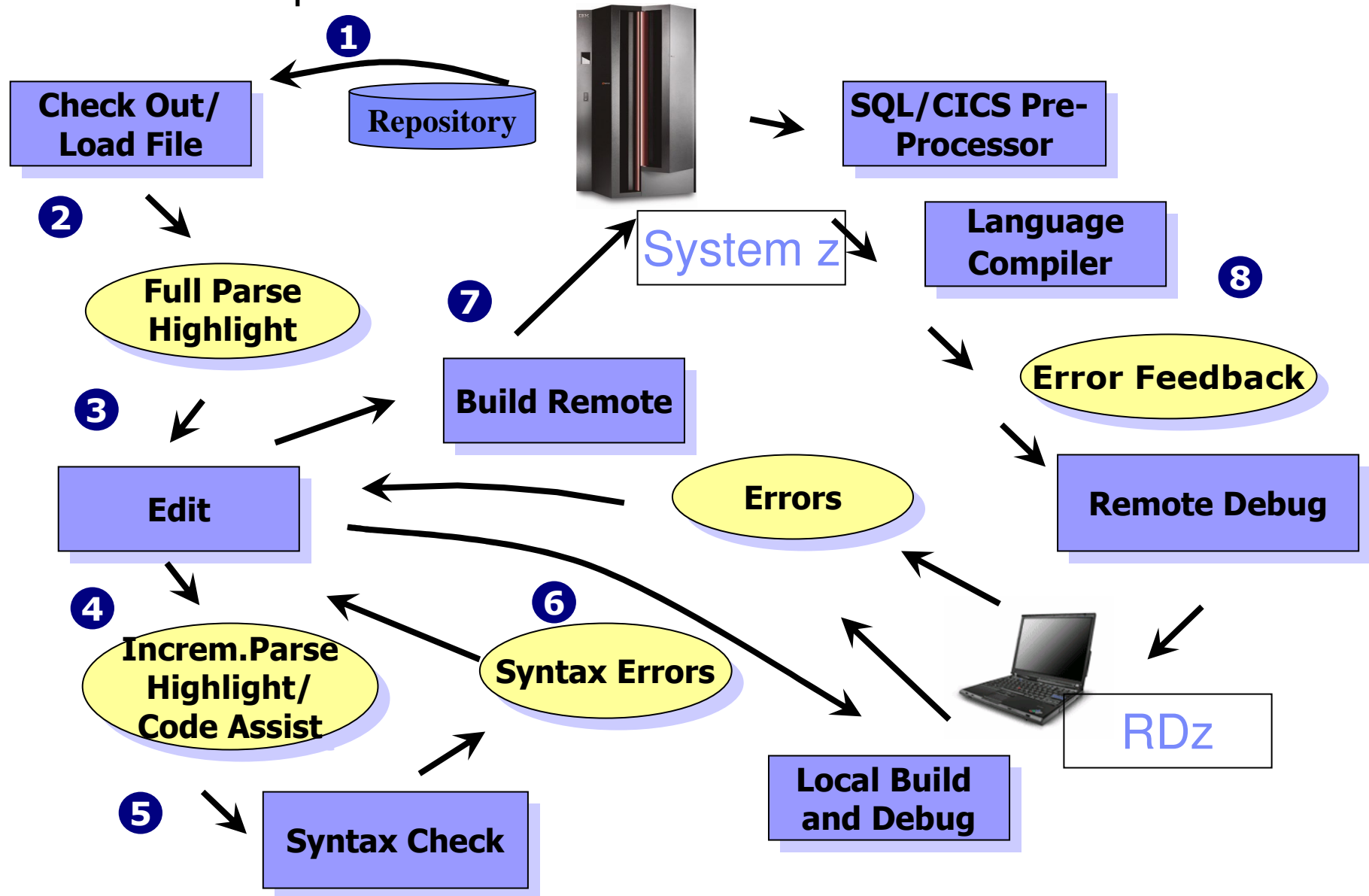
The context menu is open over the file 'IGZT' in the project tree, with the following options:

- New
- Go Into
- Go To
- Open
- Open With
- Refresh
- Expand
- Collapse
- Rename...
- Copy
- Move...
- Delete...
- Search...
- Run
- Debug
- Team
- Compare With
- Replace With
- VSE
 - RemoteCompile
 - Info
 - Upload
- Host Connection Emulator Support
- Local Syntax Check
- Nominate as Entry Point(B)
- Open Welcome Page(Q)
- Properties(Z)

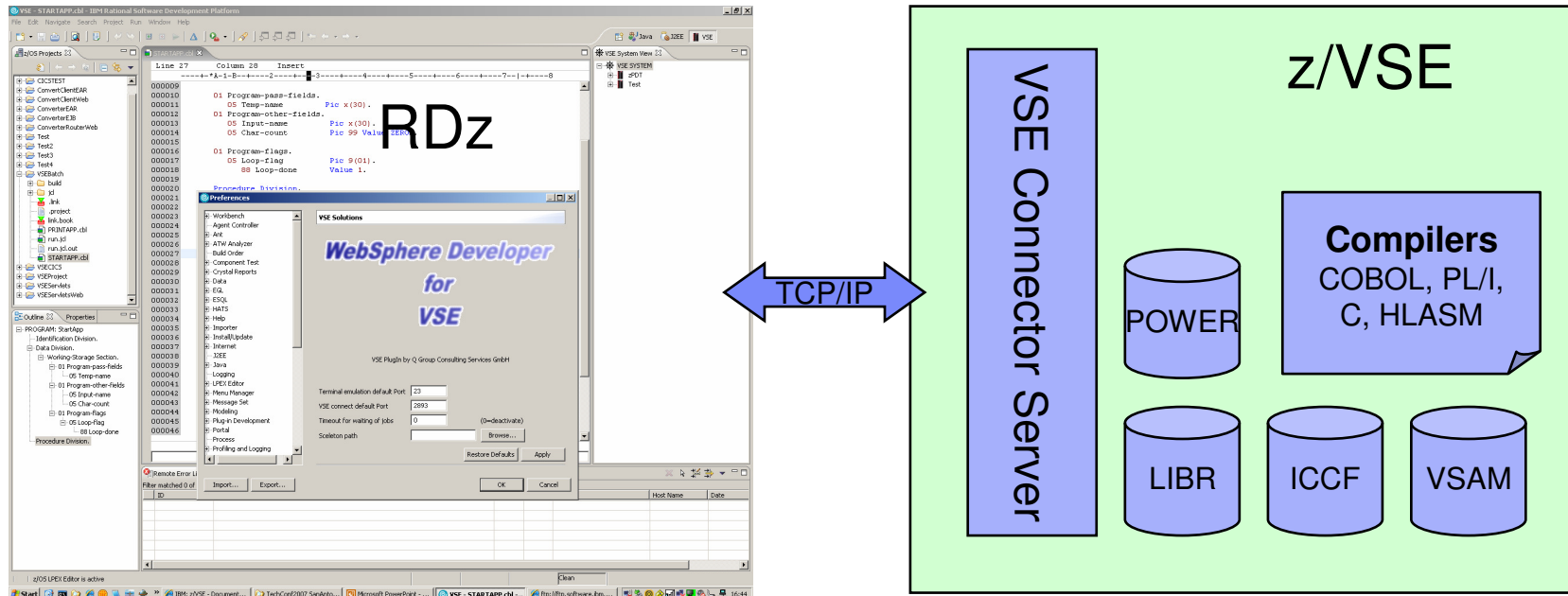
The 'Problems' window at the bottom shows the following error:

| Page | Se... | Line | Location | Host Name | Date |
|------|---------|------|---|-----------|-------------------------|
| 1 | S2106-S | 2 | 'DIVI' was found in the 'VALUE' stat... | Local | Jan 26, 2007 4:39:27 PM |

RDz Development Process

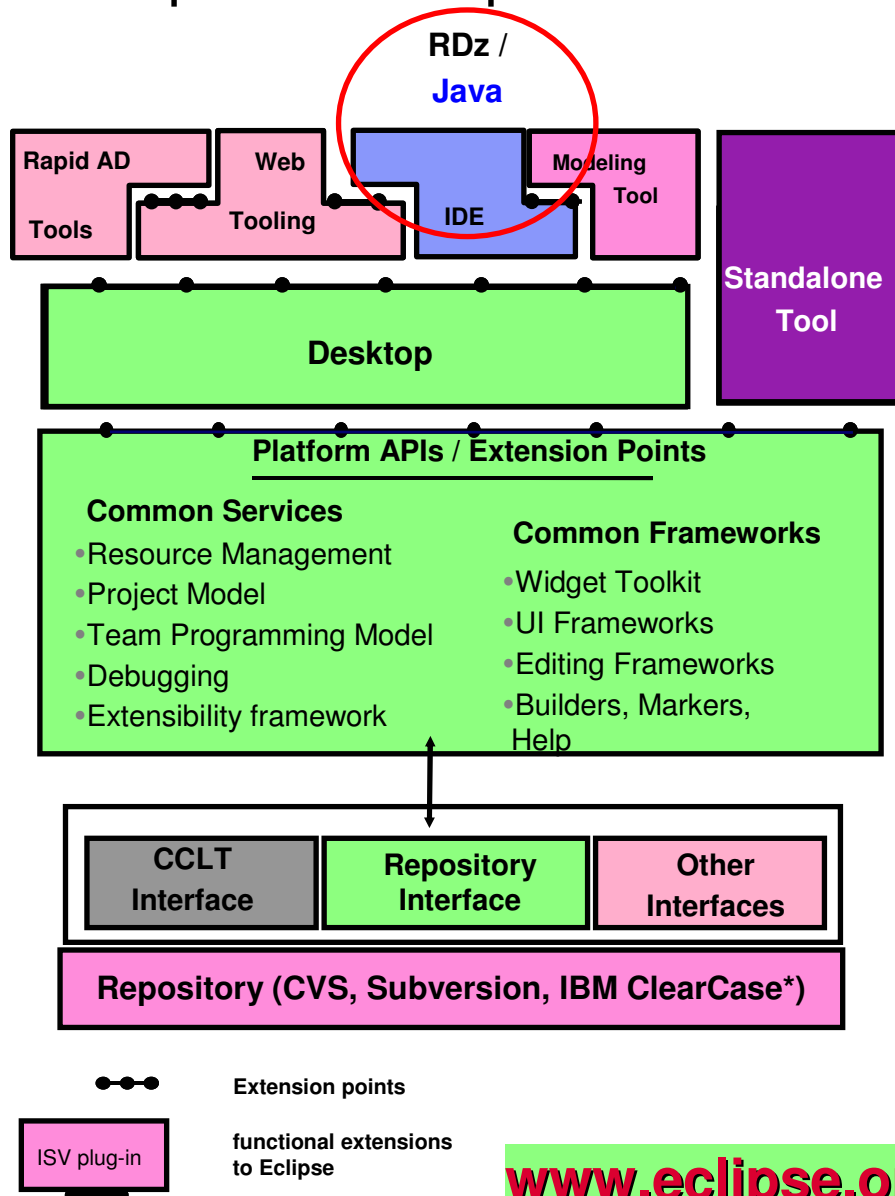


(1) Development of COBOL applications in RDz



- Development of COBOL
 - batch and CICS application
 - Source code editing/checking
 - Access to z/VSE within the tool (console and 3270 access)
 - Compile, Link and error feedback from z/VSE
- Additional supported languages: PL/I, ASM, C, BSM Maps

Eclipse – the open Standard for application development

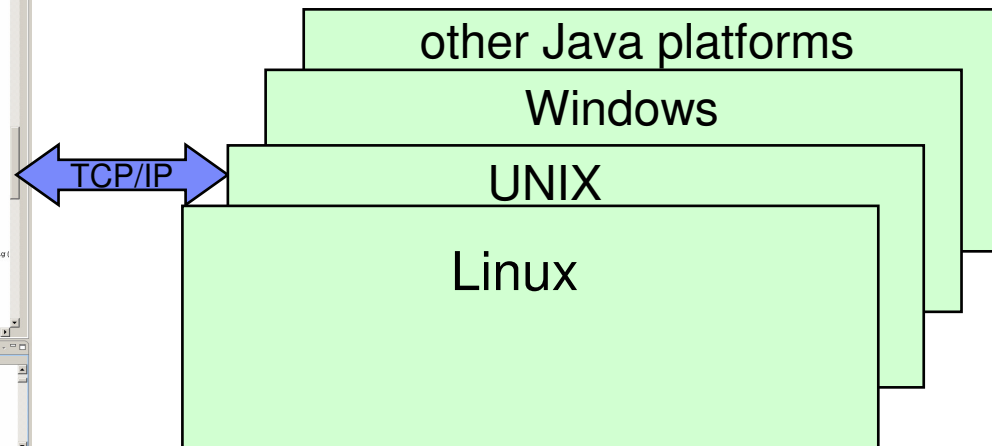
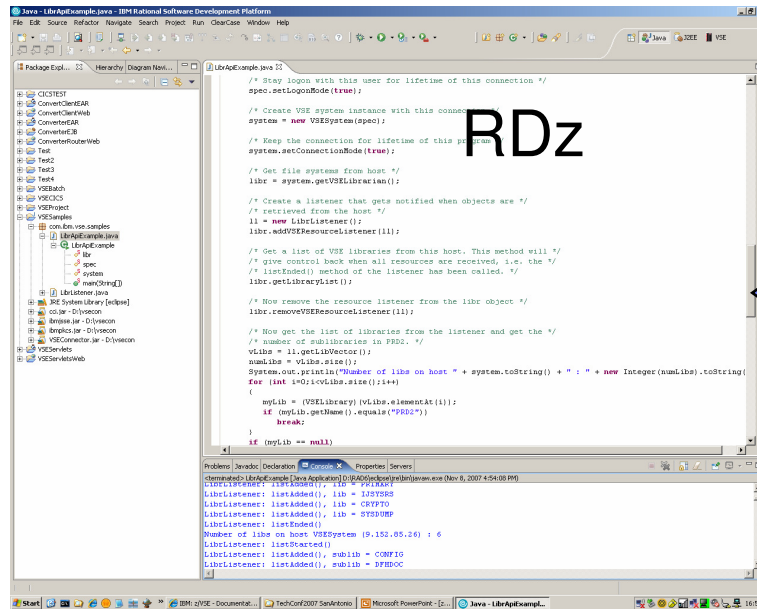


www.eclipse.org

What is Eclipse about:

- Open source development framework
 - with modern Editors
 - syntax help & check
 - semantic check
- Centralized source code maintenance
 - entire source code in central Repository
 - cross platform project administration
- Versioning software interface
 - CVS, Subversion, or IBM ClearCase
 - automatic Workgroup-control
 - i.e. development groups, system group
- Open for ISVs development Plug-Ins
 - Integrated Development Environments (IDE)
 - for System z (WDz, RDz)
 - for Java, COBOL, PL/I, ASM,C
 - Application analysis and optimization
 - Analyze the applications and workflows with graphical correlations
 - IBM HATS Development Plug-In
 - develop new front-ends to 3270 apps.
 - IBM EGL development Plug-In for z/VSE
 - follow-on to Visual Age Generator

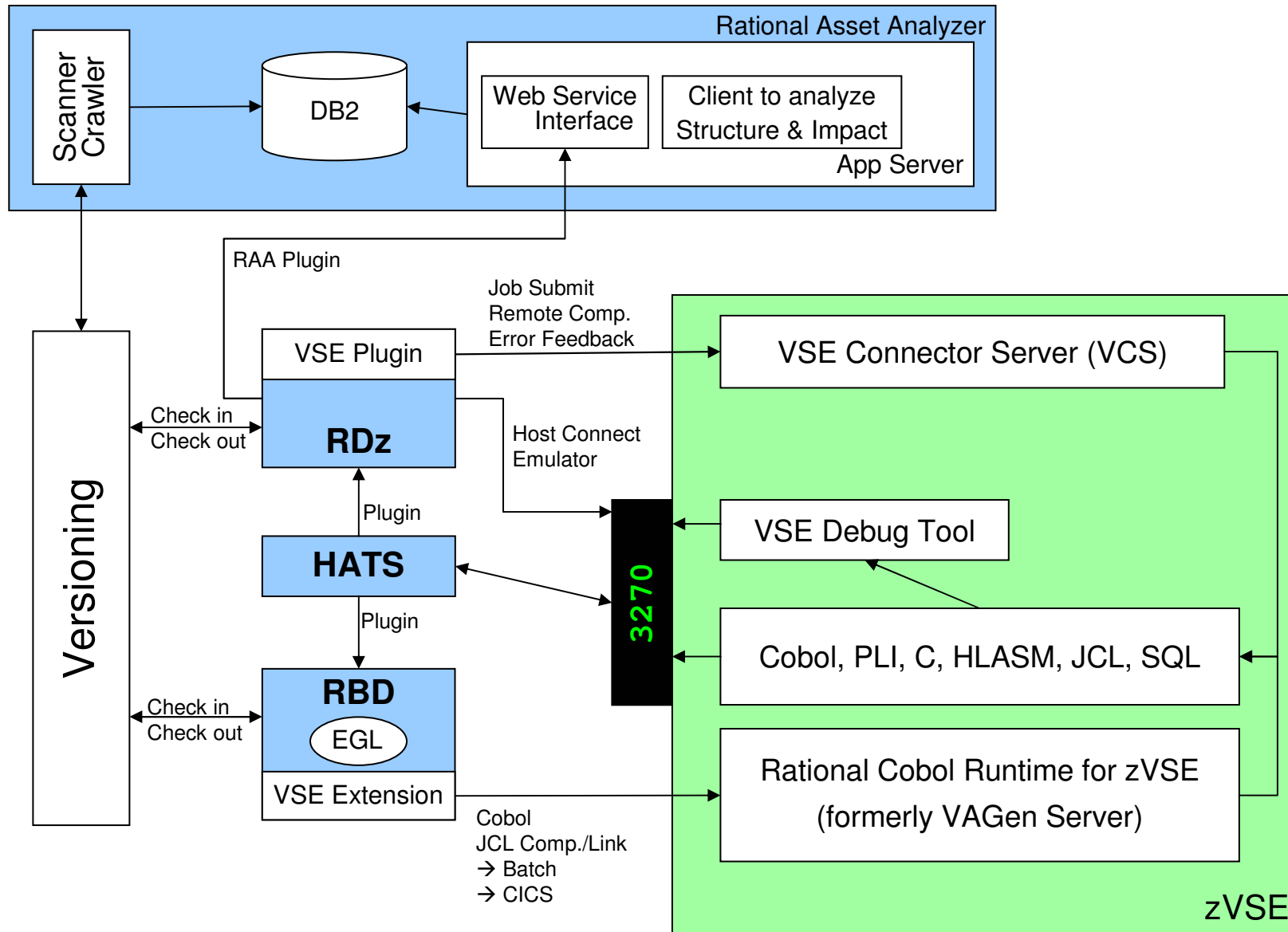
(3) Development of Java applications in RDz



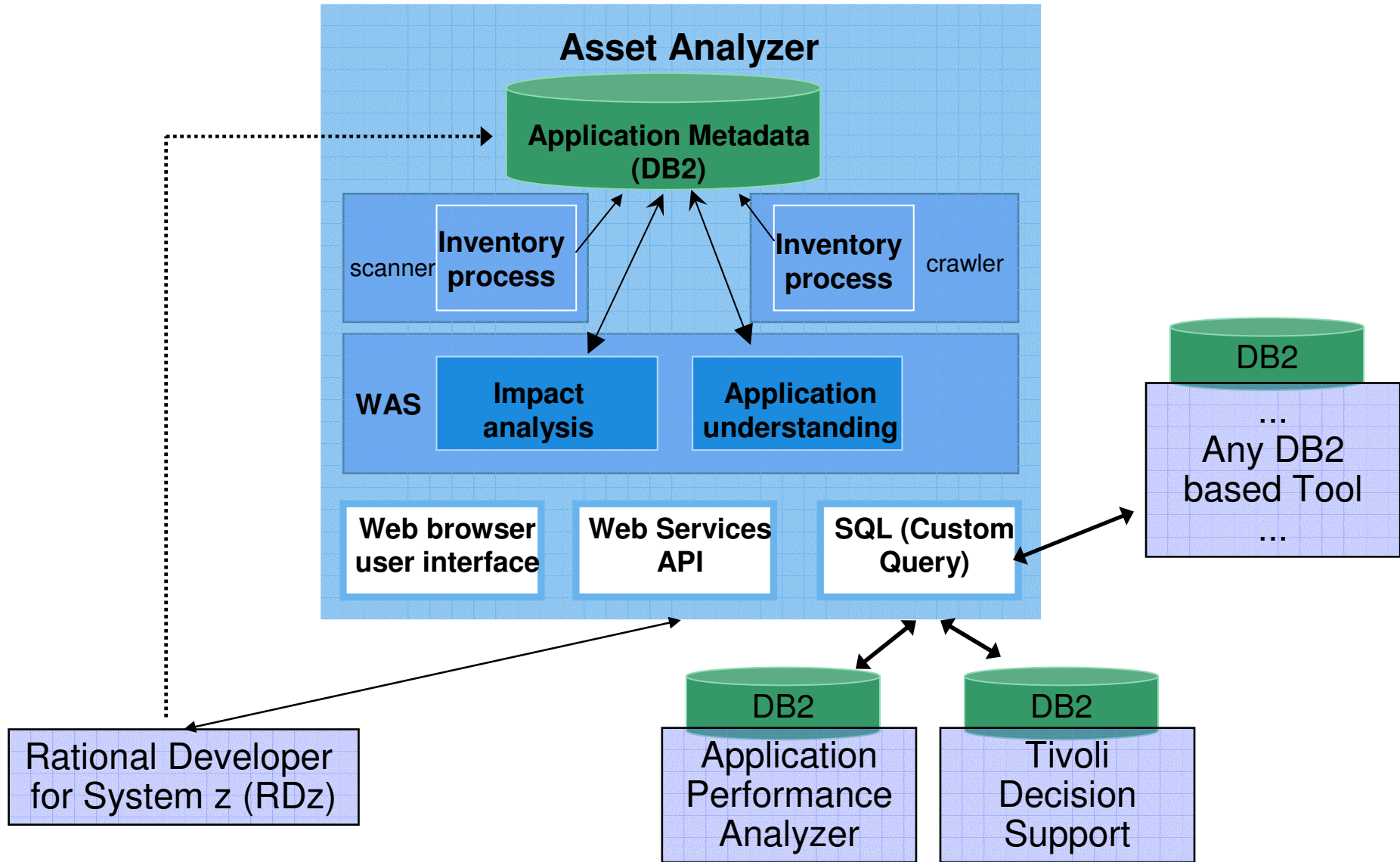
- Development of native Java applications
 - for systems like UNIX, Linux, Windows or other Java platforms
 - Edit, compile and Build
 - Test the Java application in the integrated WebSphere test environment and access z/VSE resources
 - **additional supported languages are C, C++, REXX**
- Development of Java applications to access z/VSE resources
 - use of z/VSE Java-Based Connectors
 - develop SOA components to access z/VSE services

Conclusion: Development for all platforms with one tool set

- A modern tool set to support z/VSE development and maintenance
 - modern editor for enhanced productivity
 - tools to analyse and optimize existent applications and workflow
- Common framework for enterprise development
 - standard for all developers
 - example: z/VSE with COBOL, Linux on System z with Java
 - easy skill transfer
- Open source framework
 - commonly thought in schools and universities
 - smooth introduction of new developers to the mainframe

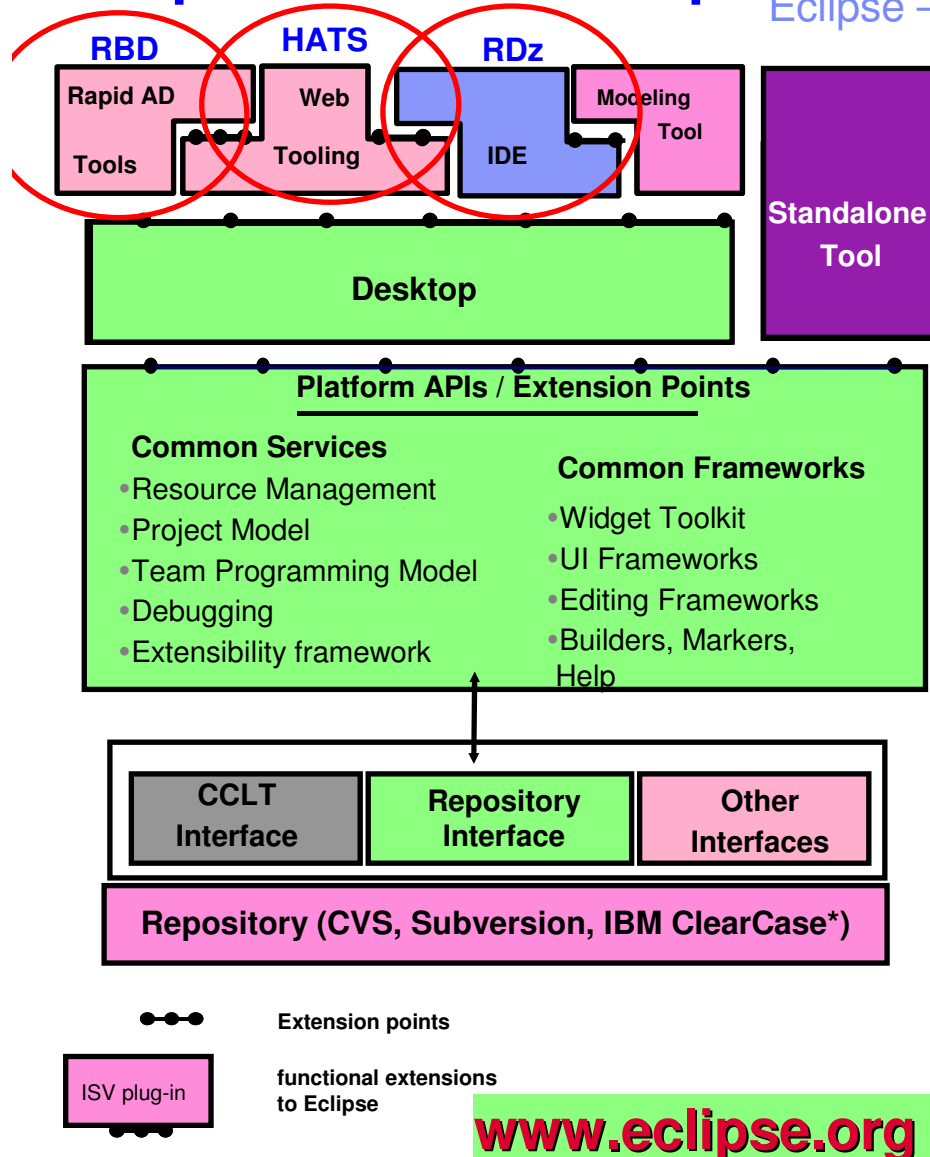


Asset Analyzer



Eclipse based Development Environments for z/VSE

Eclipse – the open Standard for application development

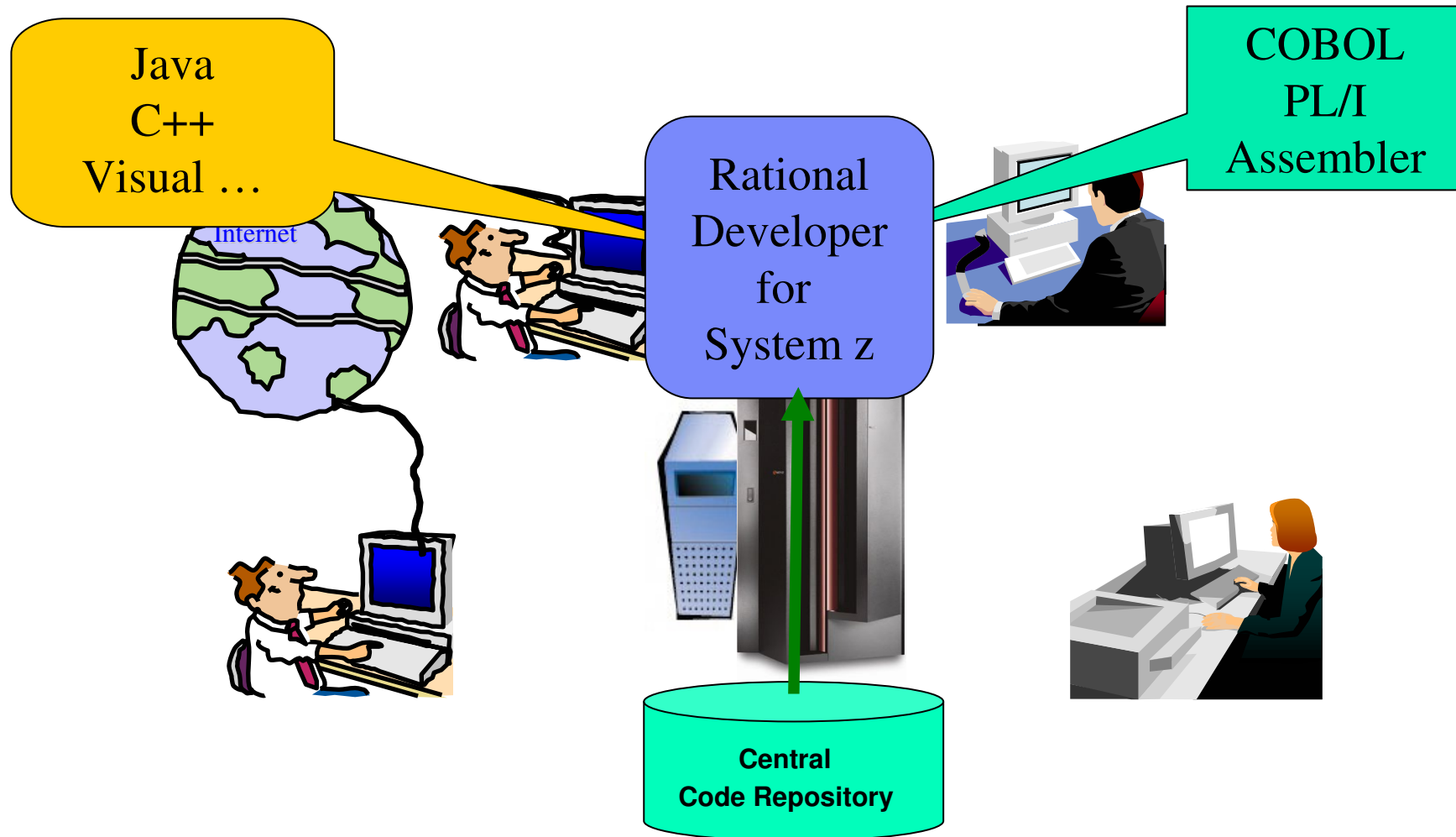


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 - 1) Integrated Development Environment (IDE)
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 - for Java, COBOL, PL/I, ASM,C
 - 2) IBM HATS Development Plug-In
 - develop new front-ends to 3270 applications
 - 3) IBM EGL development for z/VSE
 - Rational Business Developer (RBD)
 - EGL Plug-In for z/VSE
 - follow-on to Visual Age Generator

Summary

Eclipse – an open Integrated Development Environment for the enterprise



z/VSE Additional Information

- z/VSE Home Page
<http://www.ibm.com/zvse/>
- z/VSE Solutions and Utilities
<http://www-03.ibm.com/systems/z/os/zvse/solutions/>
- RDz
<http://www-01.ibm.com/software/awdtools/rdz/>
- RDz Plug-In for VSE
<http://www.qgrp.de/index.php?show=produkte&id=1&detail=wdz>
- Live Virtual Classes for RDz for VSE
<http://www-03.ibm.com/systems/z/os/zvse/education/index.html#completed>



- e-business Solutions for VSE/ESA SG24-5662
- e-business Connectivity for VSE/ESA SG24-5950
- CICS Transaction Server for VSE/ESA
CICS Web Support SG24-5997
- Handbook For WebSphere (Connectors to z/OS and VSE) SG24-7042

We appreciate your comments on z/VSE: zvse@de.ibm.com