

2009 System z Expo

October 5 – 9, 2009 – Orlando, FL



Session Title: Modern Eclipse based Development Environments for z/VSE

Session ID: ZEO04

Speaker Name: Wilhelm Mild

Authorized

IBM. | **Training**

25-Sep-09

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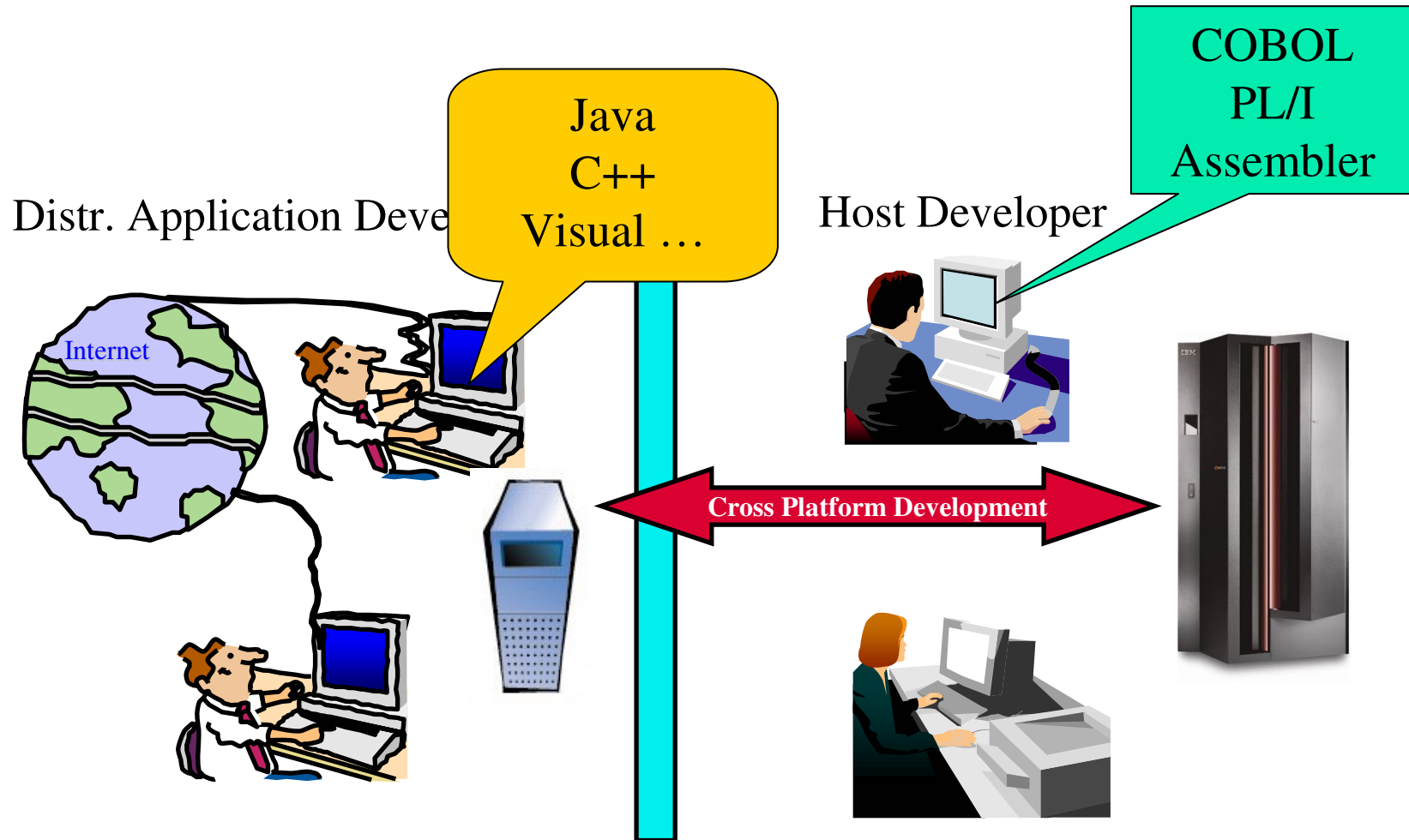
Development objectives !!!

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

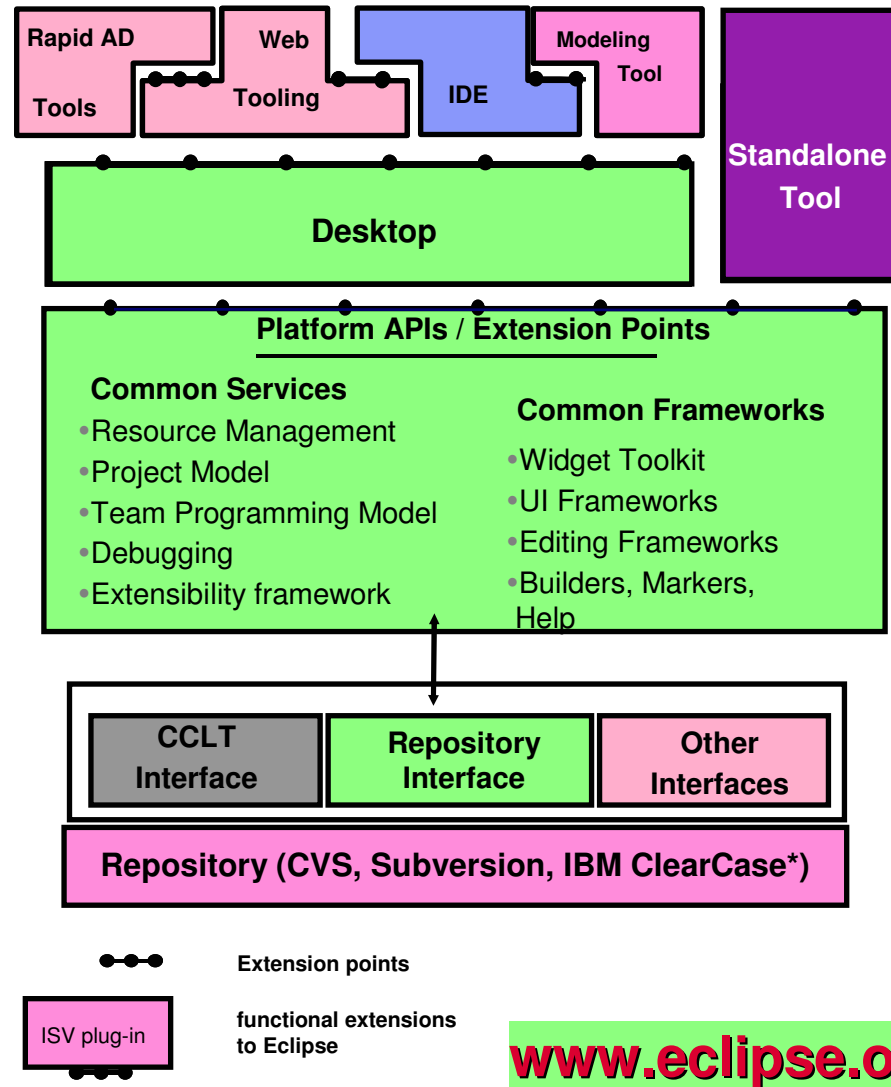
- Develop for multiple platforms
 - common framework for the enterprise instead of multiple unique platform dependent tools
 - same basic tool set for open systems and mainframe

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

'Distributed' Development Landscape...



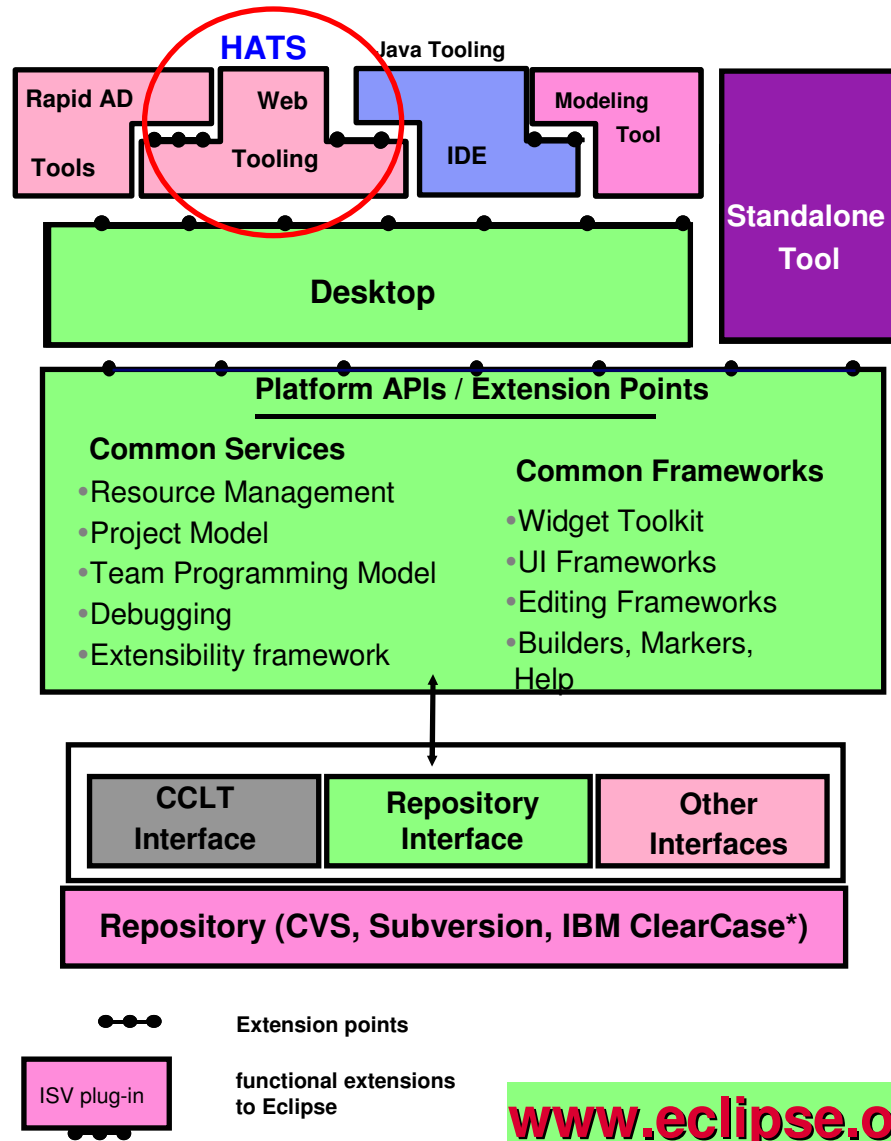
Eclipse – the open Standard for application development



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

Eclipse – the open Standard for application development



www.eclipse.org

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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 Host Access Transformation Server (HATS) in action. It shows two windows side-by-side. The left window is a terminal window displaying a 'Display Report' for 'JK Enterprises'. The report lists various sports equipment items with their part numbers and names. The right window is a web browser window showing the transformed web application. The web application has a professional look with a navigation menu, a 'Display Report' table, an 'Inventory Graph' bar chart, and a 'Delivery Schedule' calendar. The 'Inventory Graph' shows the number in stock for various items, and the 'Delivery Schedule' shows the current order quantity and image for each item.

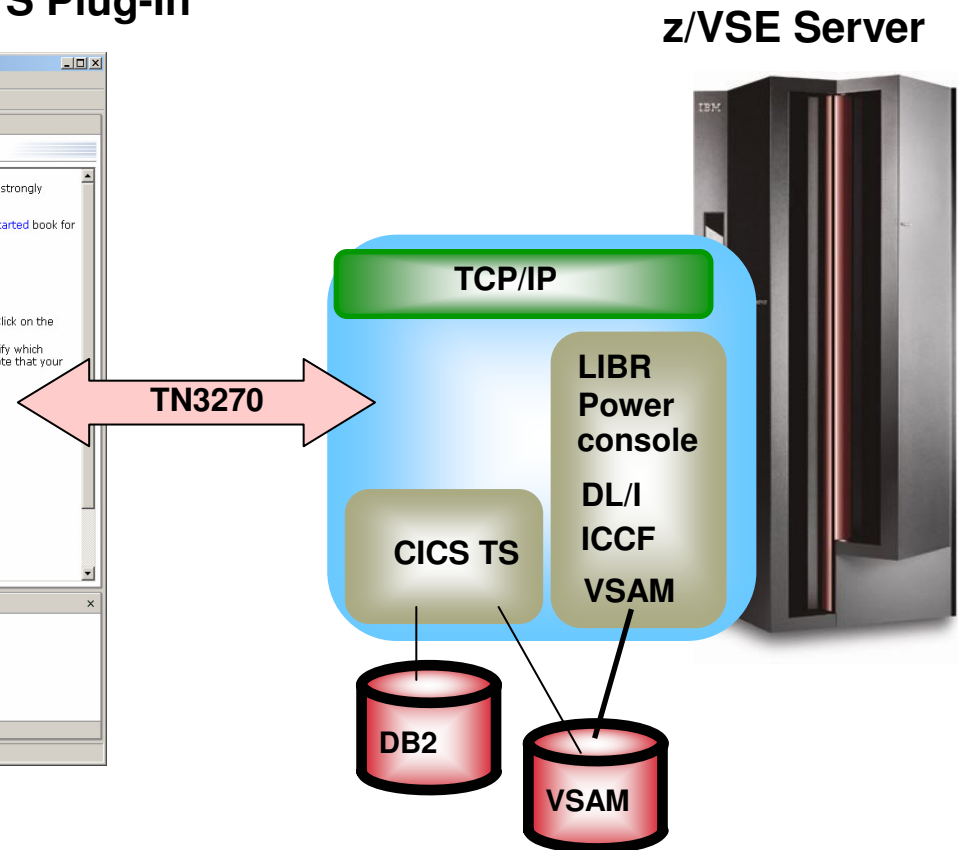
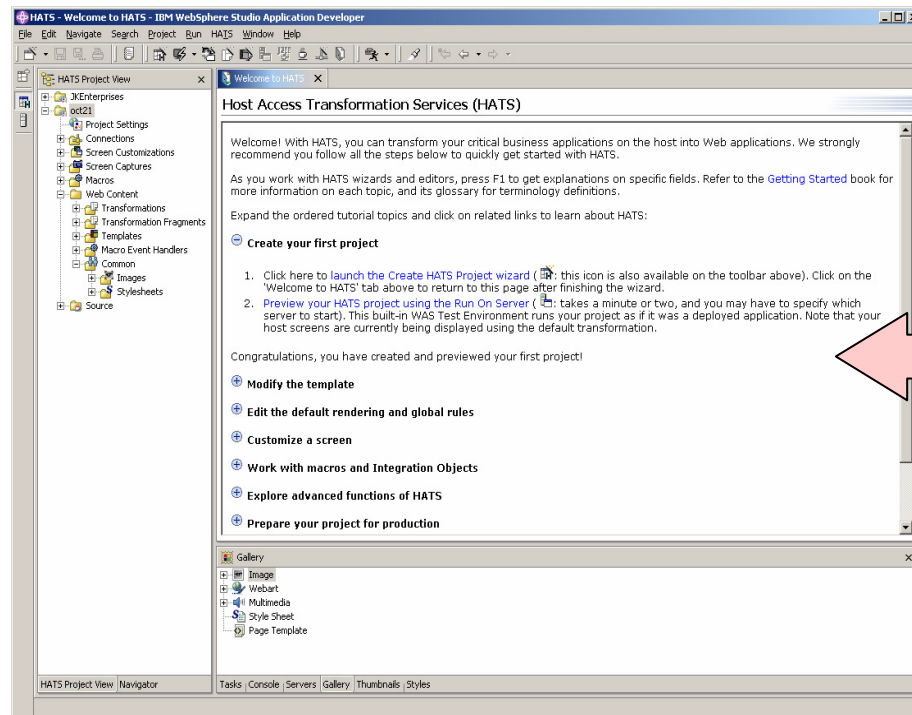
Part Number	Part Name	Quantity
000001	Baseball glove	35
000002	Catcher's mit	20
000003	Baseball - 1 doz.	40
000004	Baseball bat	46
000005	Football	33
000006	Basketball	25
000007	Tennis balls - 1 doz.	41
000008	Golf balls - 1 doz.	27
000009	Ice Skates	17

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  J=JobResp (press)  K=Calendar  L=Local data  M=Update/Open
P=Phone  R=Pages-To-All  T=To-List  U=Pages-Chain  V=View record

Columns: 42 to 81 of 69
Line# 1 to 7 of 69
AREA04 AREALL ASSIGNED ATLANTA ATLASD AUSTIN BETHESDA BOCA BOULDER BURLINGO
CHARLOTT CHICAGO CT DALA10 DALLAS DAYTON FISHKILL INSCAEO KP LEX LOTUS LOUWES
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=Pages-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>  wslch
03/03/2004 10:40 AM <DIR>  WINDOES
10/16/2003 09:26 AM <DIR>  win_jce_121
01/05/2004 04:42 PM <DIR>  wsd51
04/23/2003 05:21 AM <DIR>  wpdrive
03/03/2004 10:40 PM  14,496 Mpamin.log
          14 File(s)  4,175,691 bytes
          93 Dir(s)  22,888,353,792 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 RALYSC1 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
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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) 22,888,353,792 bytes free

14 File(s) 4,175,691 bytes



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

Oahu

Case Type

Civil

Year

Century

2000's

Case Number

Suffix

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

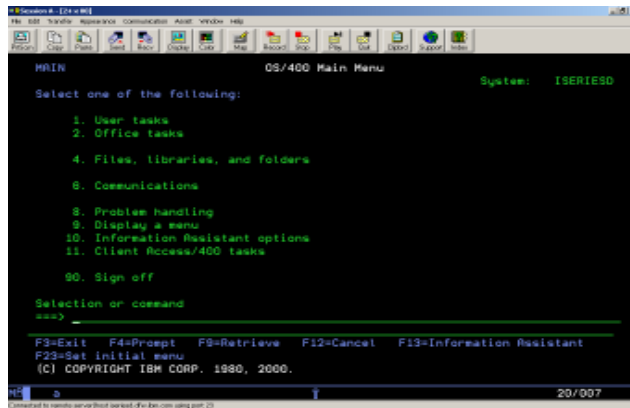
Print

Help

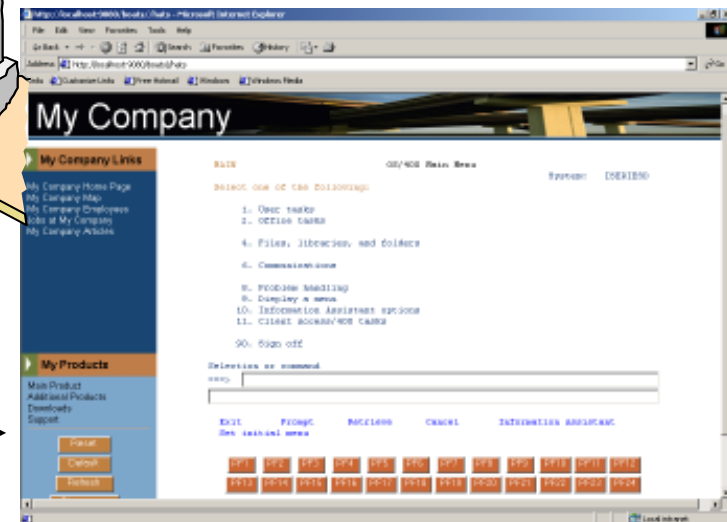
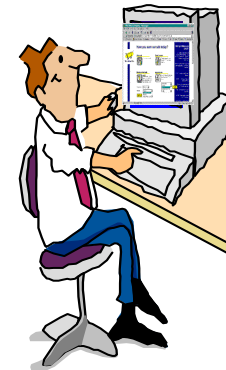
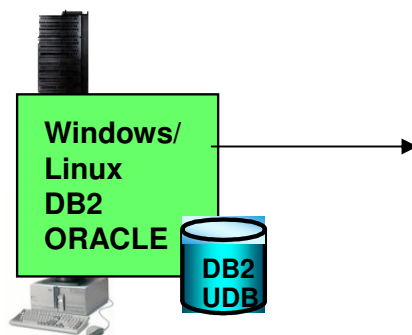
Exit

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



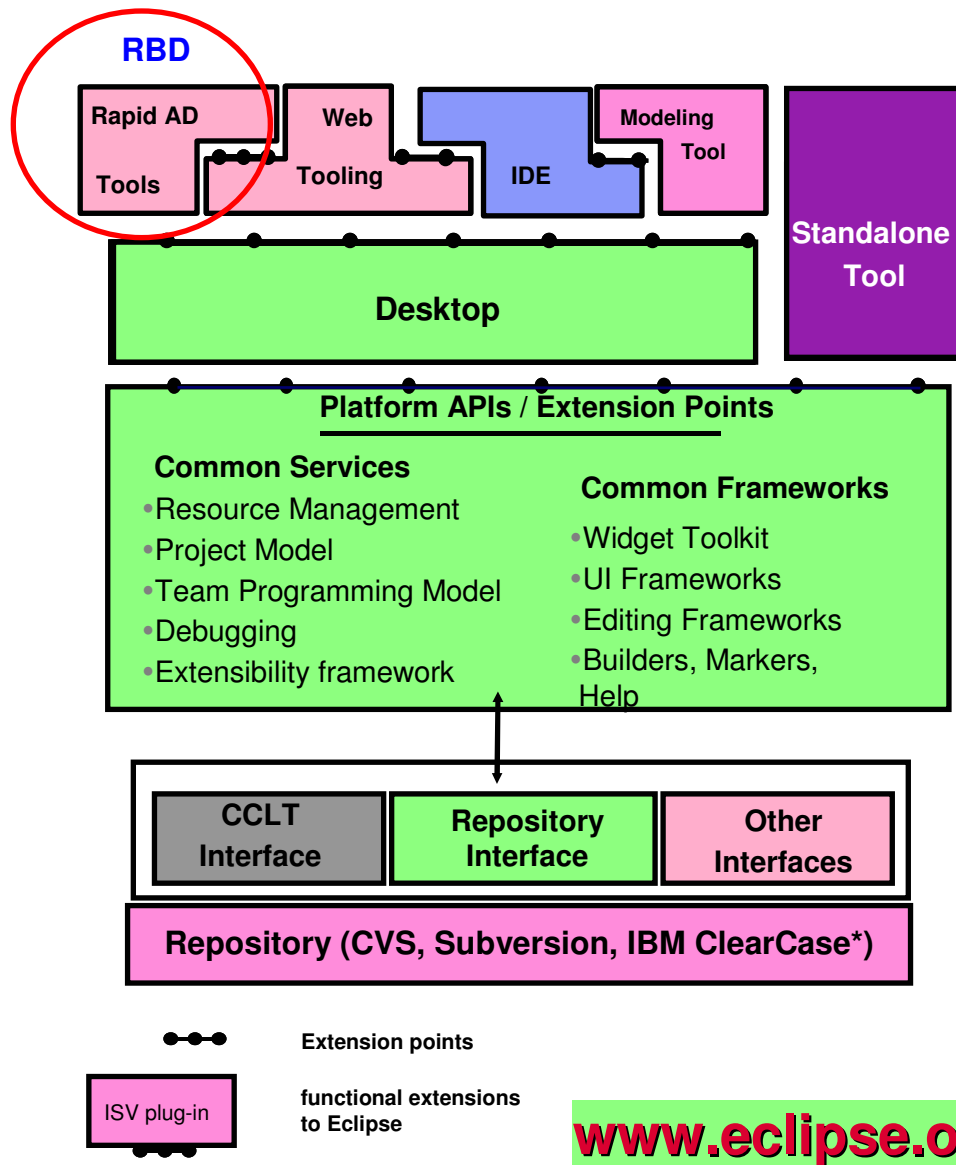
3270 or 5250
data stream



HTML in a Browser

Screen transformation rules running on
WebSphere Application Server

Eclipse – the open Standard for application development



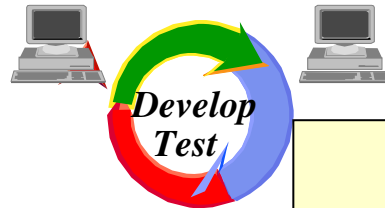
www.eclipse.org

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 - **EGL Plug-In for zVSE**
 - **follow-on to Visual Age Generator**

(2) Cross Platform Solution development Approach with 4GL Language (EGL)

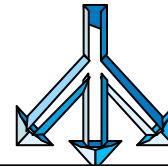
**Rapid
Development**



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



AIX



NT



HP/UX



Solaris



Linux

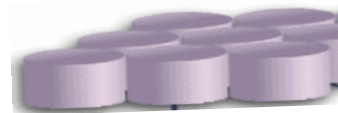


OS/400



z/OS, (CICS, IMS, Batch)

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

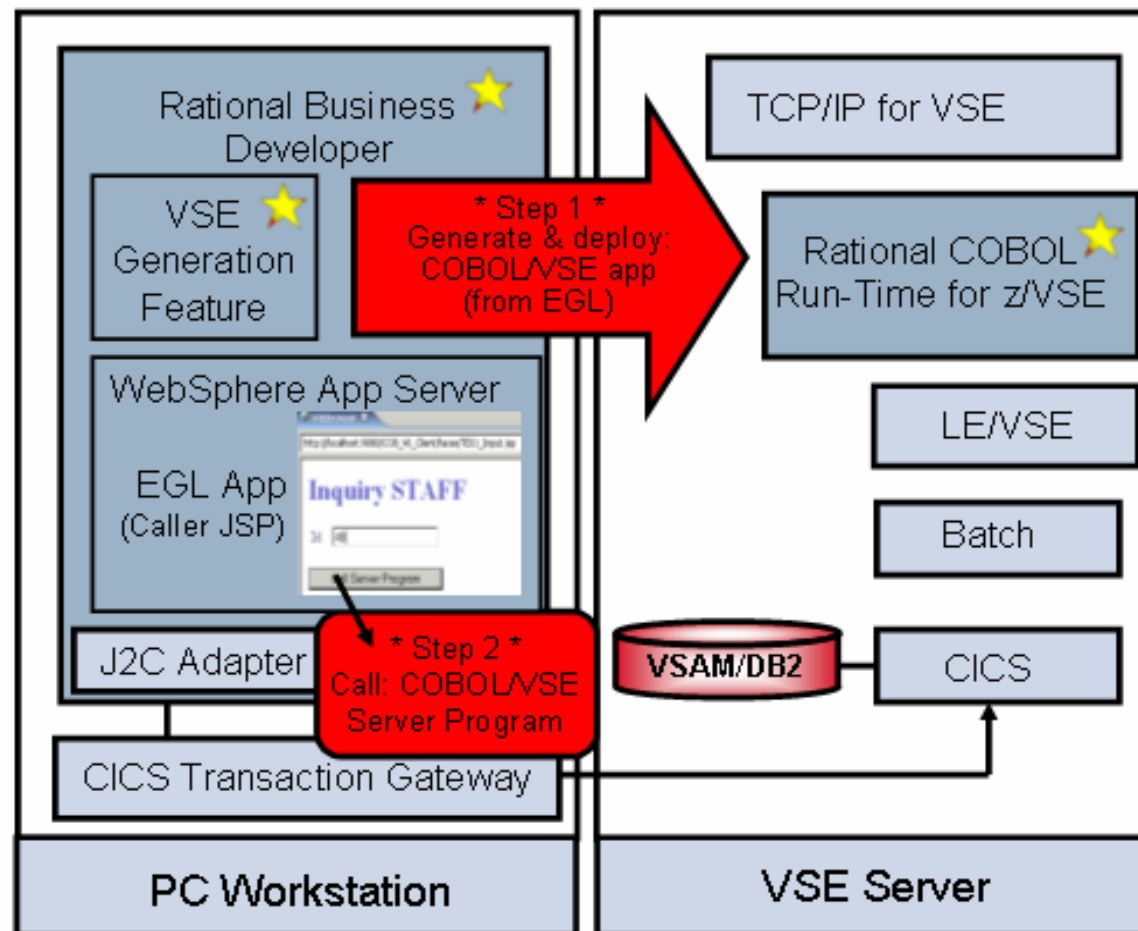


DB2 UDB VSAM ODBC
Oracle DLI, IMS/DB

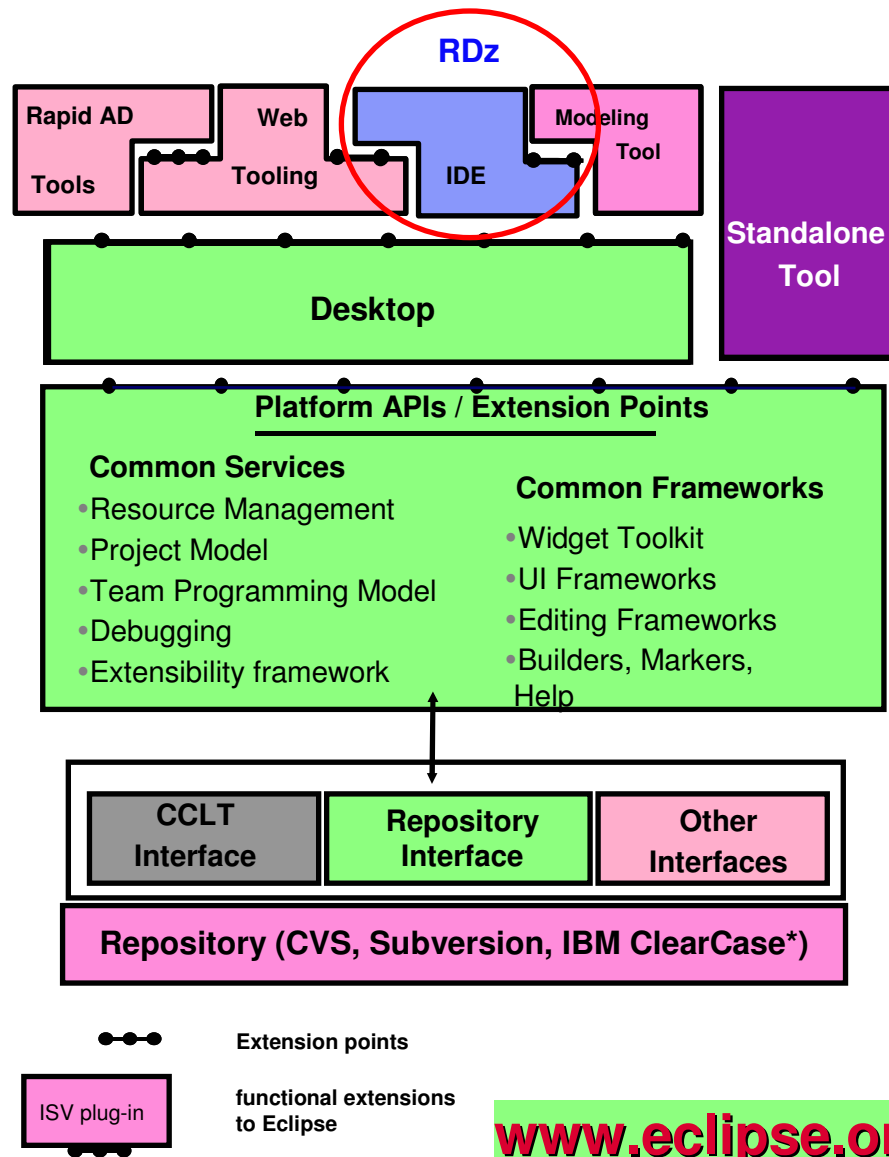
Modern development environment with RBD - IBM Rational Business Developer

- 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)



Eclipse – the open Standard for application development

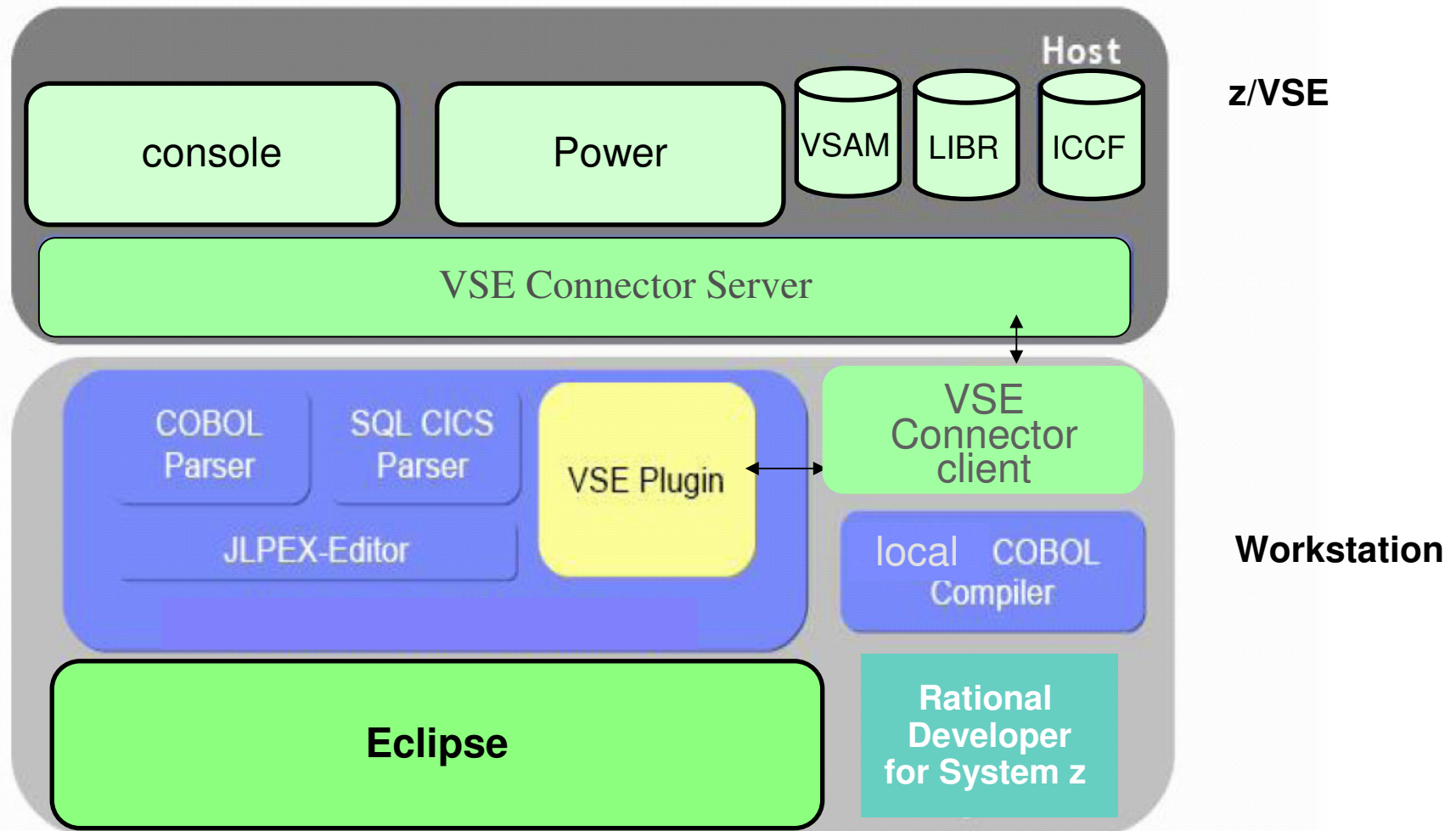


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 - **Application analysis and optimization**
 - RTW – Rational Trasformation Workbench
 - Analyze applications with graphical correlations
 - IBM HATS Development Plug-In
 - develop new front-ends to 3270 apps.
 - **IBM EGL development for z/VSE (RBD)**
 - follow-on to Visual Age Generator

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 for z/VSE. The main editor window (4. Editor) displays the source code for a program named PRINTAPP. The code is structured into several divisions and sections:

```

000001 Identification Division.
000002 Program-ID. PRINTAPP.
000003
000004 Data Division.
000005 Working-Storage Section.
000006 01 Work-Parms.
000007 05 In-Len PIC S9(4) BINARY.
000008 05 Char-count PIC 99 Value ZEROS.
000009 05 Out-Name PIC X(100).
000010
000011 Linkage Section.
000012 01 Recvd-Parms.
000013 05 In-name PIC x(30).
000014
000015
000016 Procedure Division using Recvd-Parms.
000017 Move spaces to Out-Name.
000018
000019 Move 0 to Char-count
000020 Inspect Function Reverse (In-Name)
000021 Tallying Char-count For Leading Spaces
000022 Compute In-Len = 30 - Char-count
000023
000024 Move 'Thanks to ' to Out-Name (1:10).
000025 Move In-name(1:In-Len) to Out-Name(11:In-Len)
000026 Move ' for succeeding!' to Out-Name ((11 + In-Len):16).
000027 Display Out-name.
000028 Goback.
000029
    
```

Annotations on the screenshot:

- 1. Perspective**: Points to the top menu bar and toolbar.
- 2. View**: Points to the VSE System View tree on the right side.
- 3. Projects**: Points to the z/OS Projects tree on the left side.
- 4. Editor**: Points to the central source code editor window.
- 5. Outline View**: Points to the Outline and Properties windows at the bottom left.
- 6. VSE Console**: Points to the VSE Console window at the bottom, which displays a MAP (Memory Address Page) table.

The VSE Console window shows the following MAP table:

AR	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	600K	14760K	500000	OK	VTANSTRT
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		

Rational Developer (RDz) in z/VSE perspective

The screenshot displays the IBM Rational Software Development Platform (RDz) 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
      zzzzzz  ++      VV  VV  88      EE
      zzzzzz  ++      VV  VV  88888  EEEEE
      zz      ++      VV  VV  888888  EEEEE
      zz      ++      VVVV  VV  88      EE
      zzzzzz  ++      VVVV  VV  888888  EEEEE
      zzzzzz  ++      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 0015	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 RDz window.
- 2.View**: The VSE System View tree on the right.
- 3.Projects**: The z/OS Projects tree on the left.
- 4.Outline View**: The Outline and Properties windows at the bottom left.
- 5.VSE Terminal**: The main terminal window.
- 6.VSE Console**: The VSE Console window at the bottom.
- 7.VSE Terminal**: The keyboard layout below the terminal.

■ Develop a z/VSE project

The screenshot displays the VSE - DEMOVSE.hce application interface. The main window contains a terminal window with the following text:

```

IESADM01          VSE/ESA ONLINE
5609-2V3 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  EEEPEE
          ++  WV  WV  SSSSSS  EEEPEE
          ++  WV  WV      SS  EE
          ++  WVW  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 'New' menu is open, showing 'MVS Project...' and 'VSE Project' options. The right sidebar shows a tree view of the VSE system components, including 'VSE SYSTEM', 'DEMOVSE', 'Librarian', 'Power', 'VSAM', and 'ICCF'. The bottom status bar shows the Windows taskbar with the application title 'VSE - DEMOVSE.hce'.

■ 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 'VALUE' statement with a typo 'DIVI' instead of 'DIVISION'. The error is highlighted in red.
- Remote Error List:** A table showing error messages:

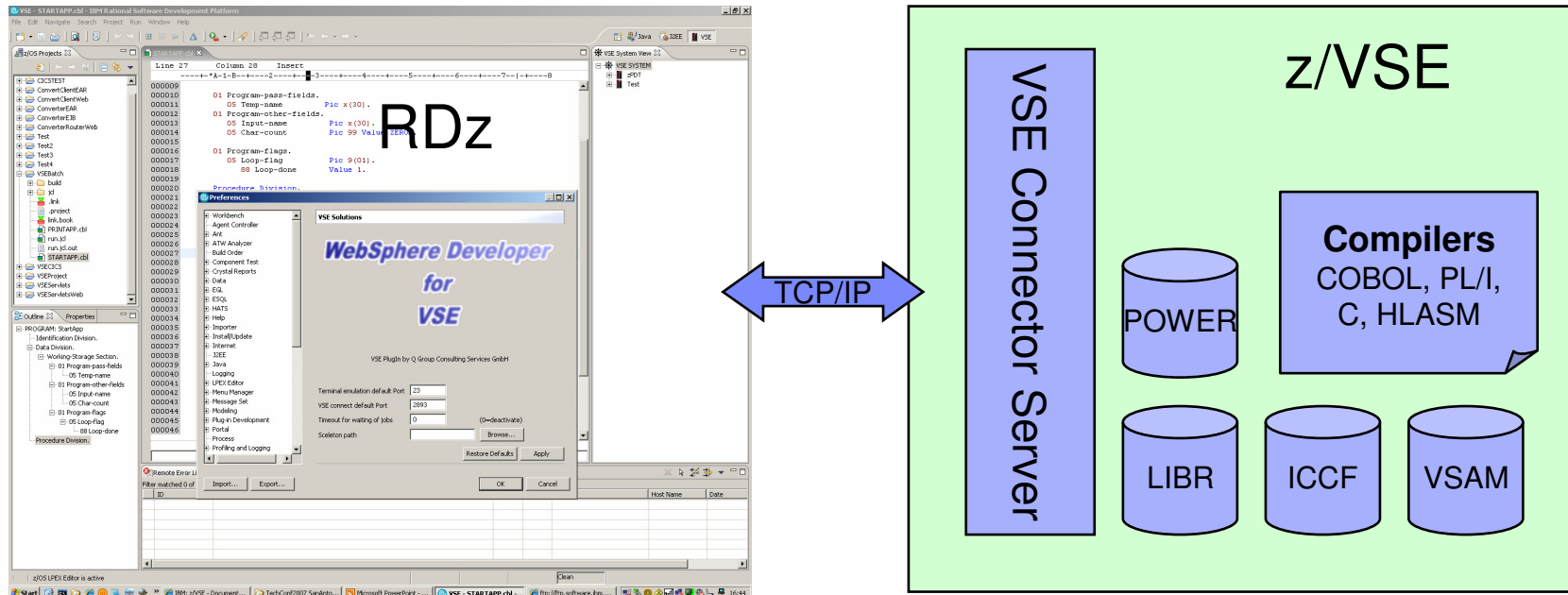
ID	Message	Se...	Line	Location	Host Name	Date
IGYPS2106	IGYPS2106-S "DIVI" was found in the "VALUE" stat...	2	40	/DEMOVSE/IGZTMATH...	Local	Jan 26, 2007 4:39:27 PM
IGYOS4027	THE SYSTEM OPTION "SYM" IS INTERPRETED AS "...	0	-1	IGZTMATH.C	DEMOVSE	Jan 26, 2007 4:41:09 PM
IGYPS2106	"DIVI" WAS FOUND IN THE "VALUE" STATEMENT. ...	2	40	IGZTMATH.C	DEMOVSE	Jan 26, 2007 4:41:09 PM

The status bar at the bottom indicates 'z/OS LPEX Editor is active' and 'Clean'.

z/VSE local and remote Compile

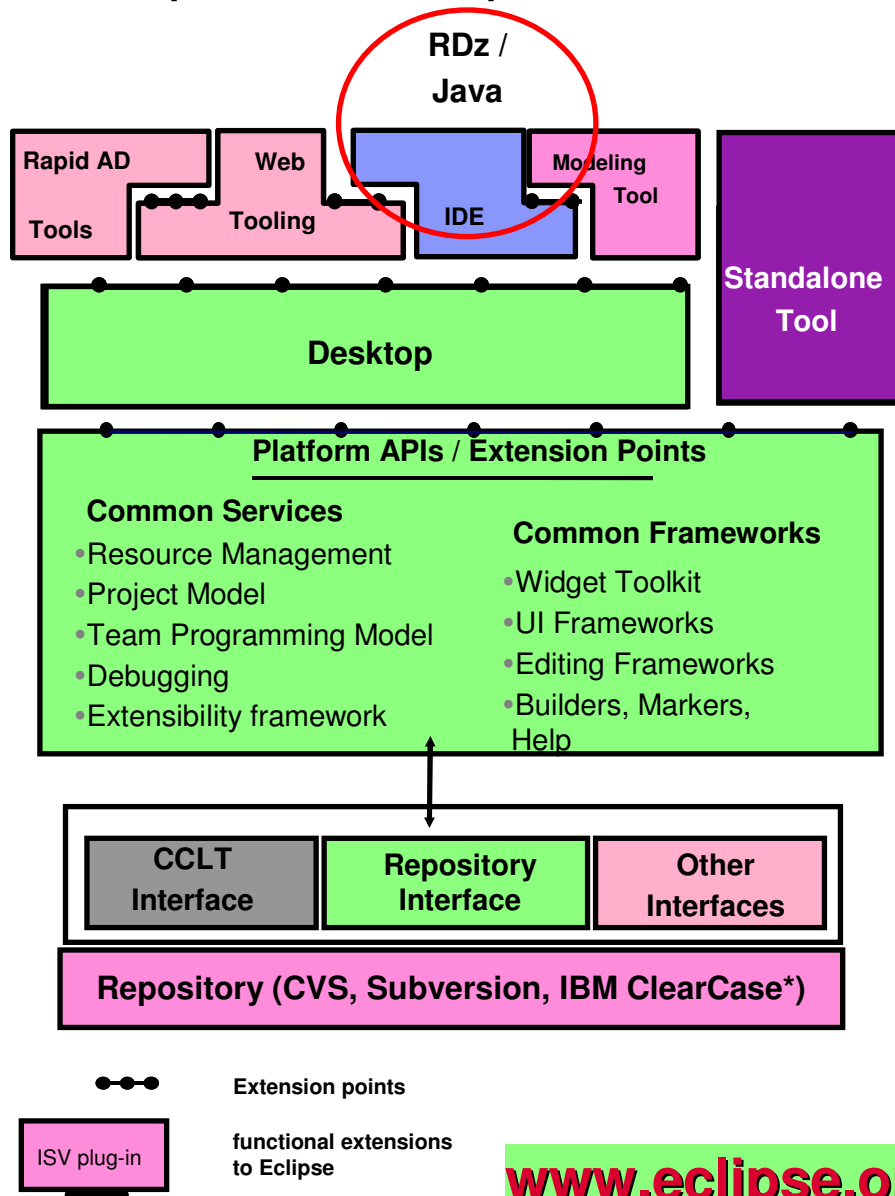
The screenshot displays the VSE IDE interface for the file 'IGZTMATH.cbl'. The main editor window shows COBOL code with a context menu open over the 'REDEFINES' statement on line 40. The menu options include 'New', 'Go Into', 'Go To', 'Open', 'Open With', 'Refresh', 'Expand', 'Collapse', 'Rename...', 'Copy', 'Move...', 'Delete...', 'Search...', 'Run', 'Debug', 'Team', 'Compare With', 'Replace With', 'VSE RemoteCompile', 'Host Connection Emulator Support', 'Local Syntax Check', 'Nominate as Entry Point(B)', 'Open Welcome Page(Q)', and 'Properties(Z)'. The 'VSE RemoteCompile' option is highlighted. Below the editor, the 'Problems' window displays an error: 'S2106-S "DIVI" was found in the "VALUE" stat...'. The system tray at the bottom right shows the time as 4:40 PM on Friday, 1/26/2007.

(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



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

www.eclipse.org

(3) Development of Java applications in RDz

```

// Stay login with this user for lifetime of this connection */
spec.getLoginMode(true);

// Create VSE system instance with this connection
system = new VSESystem(spec);

// Keep the connection for lifetime of this program
system.getConnectionMode(true);

// Get file systems from host */
libr = system.getVSELibrarian();

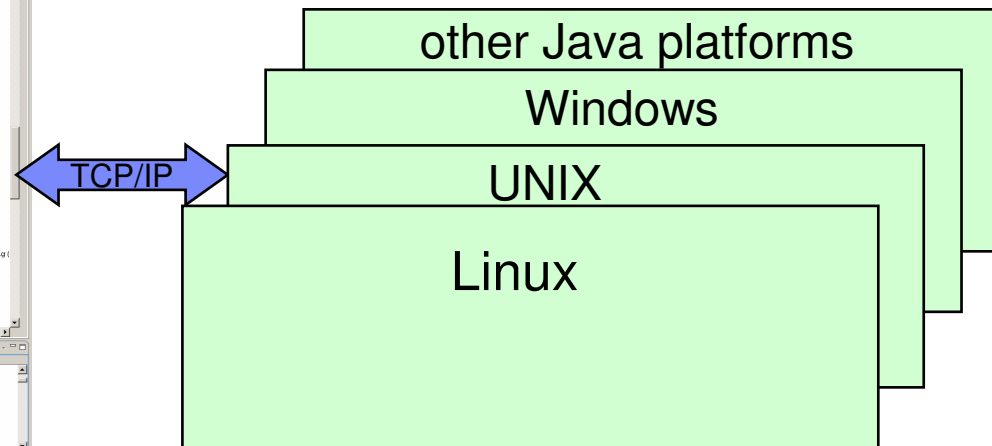
// Create a listener that gets notified when objects are */
// retrieved from the host */
ll = new LibListener();
libr.addVSEResourceListener(ll);

// Get a list of VSE libraries from this host. This method will */
// give control back when all resources are received, i.e. the */
// listEnded() method of the listener has been called. */
libr.getLibraries();

// Now remove the resource listener from the libr object */
libr.removeVSEResourceListener(ll);

// Now get the list of libraries from the listener and get the */
// number of sublibraries in PRD2. */
VLibs = ll.getLibVestor();
numLibs = VLibs.size();
System.out.println("Number of libs on host " + system.getHost() + " : " + numLibs);
for (int i=0; i<VLibs.size(); i++)
{
    myLib = (VSELibrary) VLibs.elementAt(i);
    if (myLib.getName().equals("PRD2"))
        break;
}
if (myLib == null)

```



- 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**

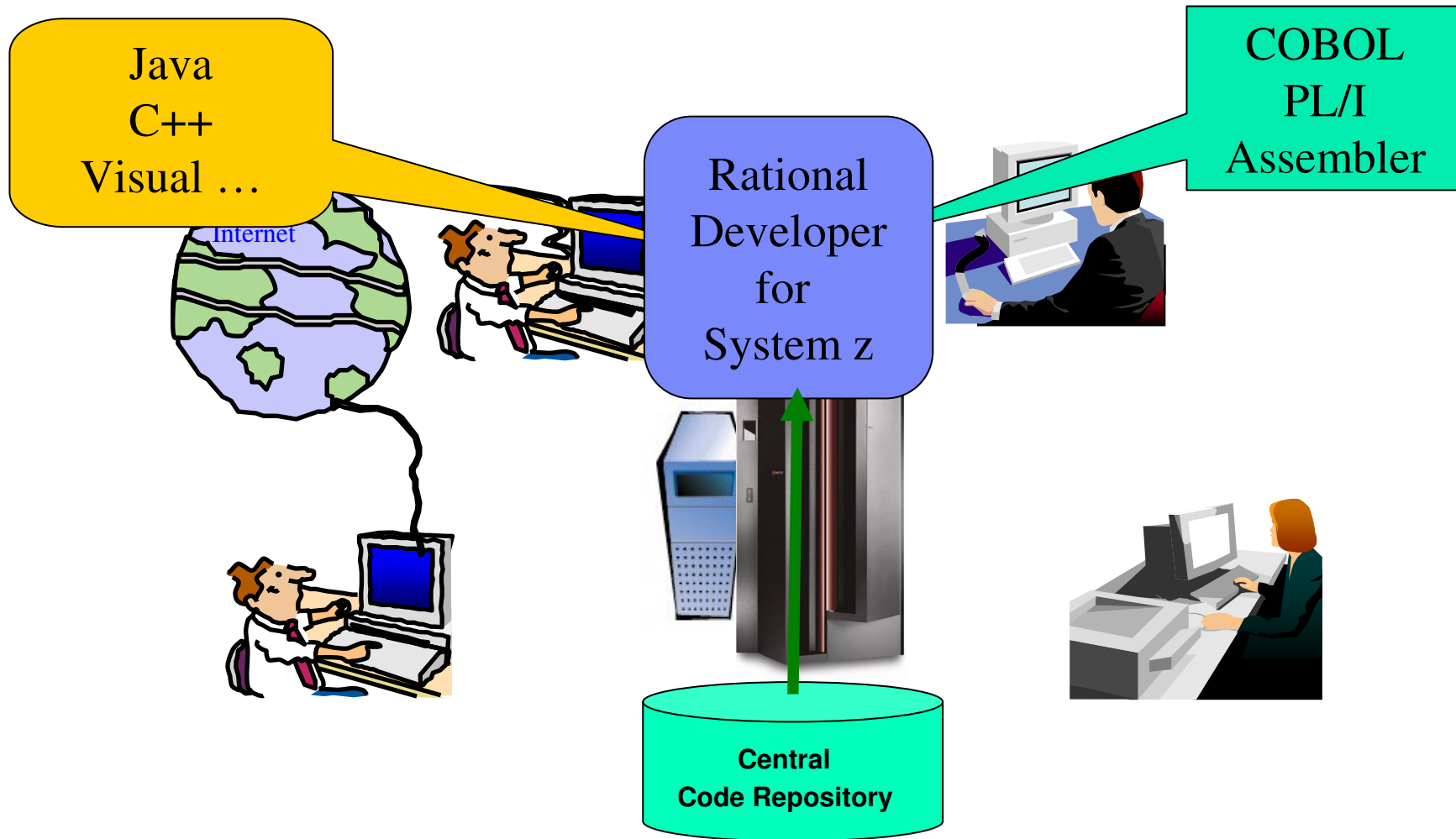
- Development of Java applications to access z/VSE resources
 - use of z/VSE Java-Based Connectors
 - develop SOA components to access z/VSE services

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

Summary

Eclipse – an open Integrated Development Environment for the enterprise



z/VSE Additional Information

- z/VSE Home Page
<http://www.ibm.com/servers/eserver/zseries/zvse/>
- z/VSE Solutions and Utilities
<http://www-1.ibm.com/servers/eserver/zseries/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/servers/eserver/zseries/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