IBM Software Group

# z/OS Problem Determination and Deployment Tools

*Version 7*

July, 2007

# Agenda

- **Introductions**
- **Overview**
- **Fault Analyzer for z/OS**
- **File Manager for z/OS**
- **Debug Tool Utilities and  Advanced Functions for z/OS**
- **Application Performance Analyzer for z/OS**
- **Application Performance Analyzer Automation Assistant for z/OS**
- **Workload Simulator for z/OS and OS/390**
- **Rational Functional Tester**
- **Rational Performance Tester for z/OS**
- **Migration Utility for z/OS**
- **Application Time Facility for z/OS**
- **File Export Utility for z/OS**
- **ISPF Productivity Tool for z/OS**
- **Websphere Developer for System z**
- **Advantages**

# Why Customers Are Migrating?

## Business:

**Vendor Issues**
- **Business Practices**
- **Pricing Issues**
  - Upgrade Fees
  - Rising Maintenance Fees
  - Unplanned budget overages
  - Long Term Contracts

## Technical:

**Product Issues**
- **Ongoing Enhancements**
- **Integration With Other Products And Hardware Enhancements**
- **Product Support**
- **Administrative Complexity**

**Application Development Environment**
- **Unable to deploy new applications on the platform that best meets business needs (S/390)**
- **Forced to consider other platforms for application hosting or affordable tools and utilities**
- **Reuse traditional assets in the Internet world**
- **Demand for more sophisticated tools to develop and deploy e-business runtime like WebSphere & MQ**

# IBM's Solution

- Offer a set of tools that:
  - ▶ Exploits IBM's latest software and processor technology
  - ▶ Offer wide array of key features and functions
  - ▶ Can enhance the Application Development Lifecycle
  - ▶ Provide opportunity for increased user productivity
  - ▶ Are affordably priced
  - ▶ Have flexible terms and conditions
  - ▶ Have no license keys

# Switching from Compuware to IBM

## 2007 OFFERINGS

Abend-AID/XLS

Abend-AID/DB2

Abend-AID-IMS

CICS Abend-AID/FX

CICS Abend-AID/FX for DB2

Abend-AID/e-Business

File-AID/MVS

File-AID/DB2

File-AID/IMS

File-AID/RDX

XPEDITER/CICS

XPEDITER/TSO

XPEDITER/IMS

XPEDITER/DB2

XPEDITER/Code Coverage

XPEDITER/XChange

QA Hiperstation

Strobe Suite (CICS, DB2, IMS, COBOL)

**Fault Analyzer V7**

**File Manager V7**

**File Export**

**Debug Tool Utilities AF V7**

**Application Time Facility**

**Workload Simulator**
**Rtl Functional Tester z/os**
**Rtl Performance Tester z/os**

**Application Performance Analyzer V7**

WASz

DB2

COBOL Modernization

WDDZ

ON DEMAND BUSINESS

5

# z/OS Problem Determination and Deployment Tools

- **Fault Analyzer for z/OS**
  - ▸ Captures and analyzes abend information about application and environment

- **File Manager for z/OS**
  - ▸ Manages production, test, and development data across multiple file formats and storage media

- **Debug Tool Utilities and Advanced Functions for z/OS**
  - ▸ Interactive source level debugging for multiple languages

- **Application Performance Analyzer for z/OS**
  - ▸ Helps maximize application performance

- **Application Performance Analyzer Automation Assistant for z/OS**
  - ▸ Provides automation and integration of Application Performance Analyzer and its reports

# z/OS Problem Determination and Deployment Tools

- **Workload Simulator for z/OS and OS/390**
  - ▶ Function, regression, performance, and stress testing

- **Rational Functional Tester**
  - ▶ Provides testers with automated capabilities for data-driven testing

- **Rational Performance Tester for z/OS**
  - ▶ Enables the use of zSeries® hardware as a load generation platform

- **Migration Utility**
  - ▶ Converts CA-Easytrieve Plus® programs into standard IBM COBOL programs

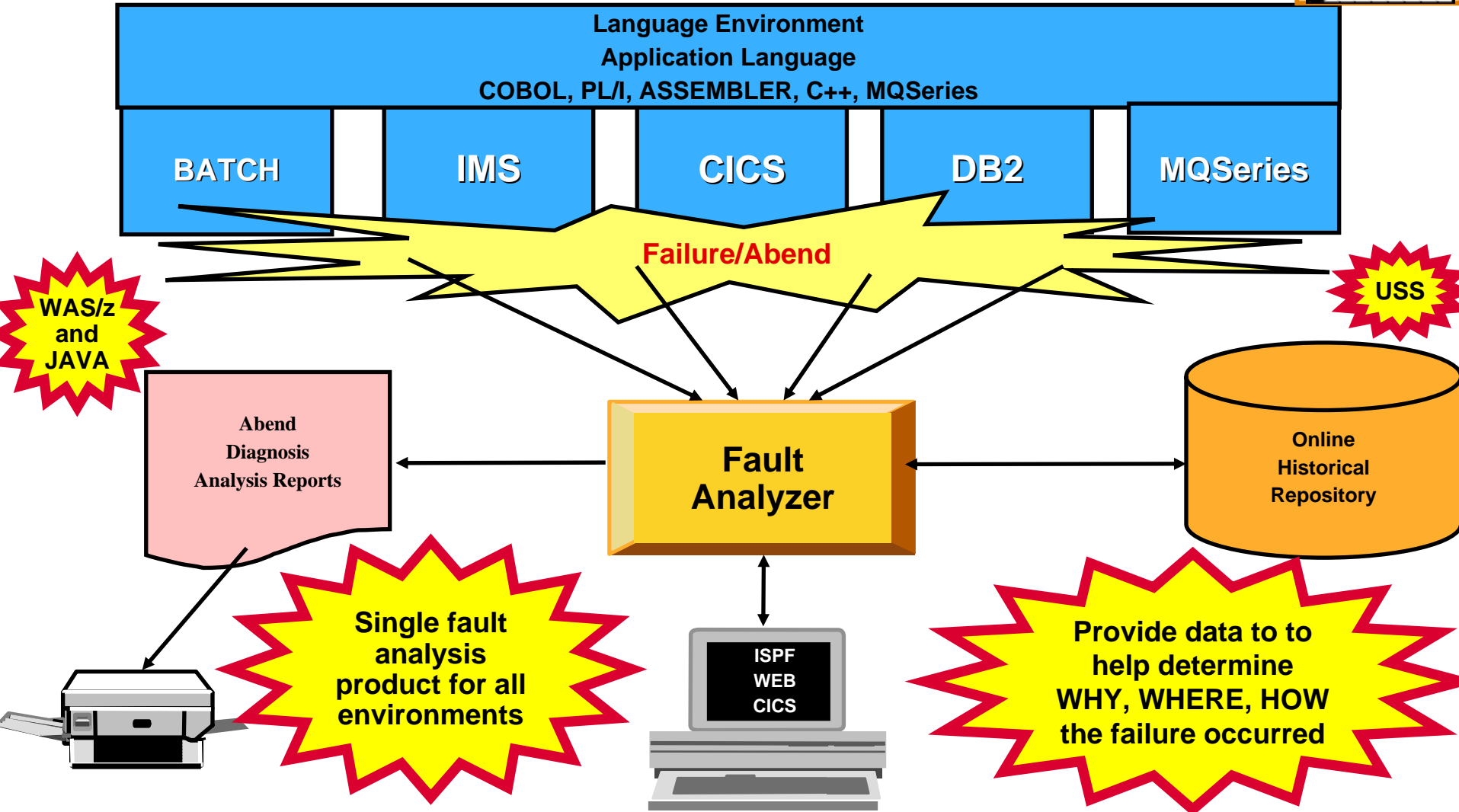# z/OS Problem Determination and Deployment Tools

- **Application Time Facility for z/OS**
  - ▶ Provides date and time manipulation for time sensitive applications

- **File Export Utility for z/OS**
  - ▶ Enables you to quickly build related sets of test data

- **ISPF Productivity Tool for z/OS**
  - ▶ Integrates with ISPF providing improved access to key functionality, reducing time-consuming navigation steps

- **Websphere Developer for System z**
  - ▶ WebSphere® Developer speeds efficiency of traditional mainframe, Web development and integrated mixed workload

# Fault Analyzer - *Helps you rapidly pinpoint why and where an enterprise application failed - and offers suggestions on how to resolve*
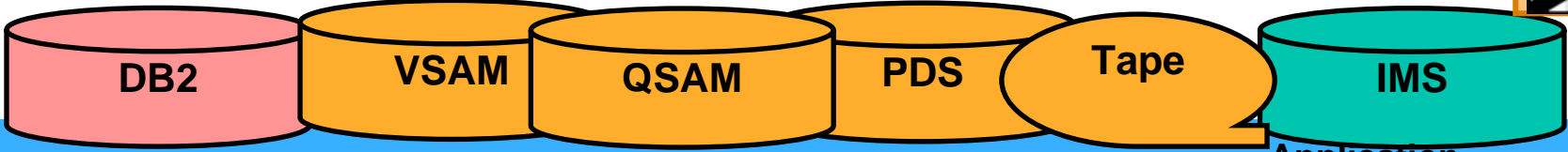
Improve

**Language Environment**
**Application Language**
**COBOL, PL/I, ASSEMBLER, C++, MQSeries**

| BATCH | IMS | CICS | DB2 | MQSeries |

**Failure/Abend**

WAS/z and JAVA

USS

Abend Diagnosis Analysis Reports

**Fault Analyzer**

Online Historical Repository

**Single fault analysis product for all environments**

ISPF WEB CICS

**Provide data to to help determine WHY, WHERE, HOW the failure occurred**

# Fault Analyzer Features

- Analysis at application level

- Information gathered at time of abend

- Translates low-level dump information into application-level information

- Expands abend code and message descriptions

- No recompile of applications

- No JCL changes

- No performance overhead

- Integrated 64-bit DB2 support

- Modes Of Operation
  - ▶ Real-time analysis
  - ▶ Batch dump re-analysis
  - ▶ Interactive dump re-analysis

- Interfaces
  - ▶ ISPF
  - ▶ Web browser
  - ▶ CICS

- Interface to File Manager

# File Manager - *Manage a variety of enterprise data file structures*

**Improve**

| DB2 | VSAM | QSAM | PDS | Tape | IMS |

**Native** **File and Data Management** **Application**

**Data** **Create, Edit, Browse,** **Mapped**

**Extract, Copy, Print,** **IAM OAM HFS** **Data**

**Manipulation** **Compare** **Manipulation**

| File Manager DB2 | File Manager z/OS | File Manager IMS | File Manager CICS |

**Common User Interface In All Environments**

**ISPF CICS**

**Do what you want, how you want, with your data**

# File Manager z/OS Features
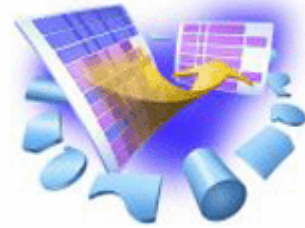
- ISPF-like panels
- Full function edit and browse
  - Table
  - Single
- Flexible selection criteria
  - Work with copybooks or templates
- Modes Of Operation
  - Interactive
    - TSO ISPF
  - Batch
- Edit any file regardless of size

- Create data
- Print data
- Copy data
  - File reformatting
- Catalog services
- Work with VTOC
- Search for and change data
  - Insert continuation JCL statement
- Compare data
- View or print copybooks or templates

# File Manager DB2 Features
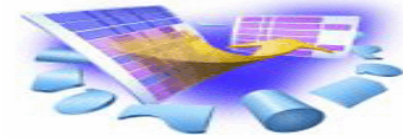
- Edit and Browse data
  - ▸ Edit a DB2 Table or View
  - ▸ select rows and columns displayed
- Print
  - ▸ Table or Single format
  - ▸ select rows and columns
- Create and Drop DB2 objects
- Copy data
  - ▸ select rows
  - ▸ "map" columns from an input table to an output table
  - ▸ reformat and generate data while copying
- Work with a list of DB2 objects
  - ▸ Use line commands to initiate functions

- Grant and Revoke DB2 privileges
- Import and Export data
  - ▸ Select Rows
  - ▸ Export to a file in default FM/DB2 format, a format defined by a copybook, or a comma-delimited file
  - ▸ Import from a file generated by the Export function, or a file described by a copybook
- Generate JCL for DB2 utilities:
  - ▸ COPY, LOAD, REBUILD, RECOVER, REORG, and RUNSTATS
- Execute SQL Statements
- Create and test new SQL statements
  - ▸ Two methods: Basic and Advanced

# File Manager IMS Features
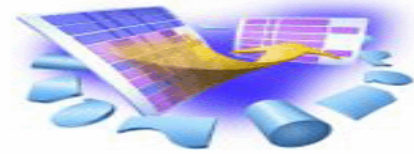
- **Online utilities for IMS databases**
  - ▸ Edit and Browse data
  - ▸ Extract segments from a database
  - ▸ Load segments into a database

- **Support for processing databases using either:**
  - ▸ physical DBD
  - ▸ logical DBD

- **Access databases using either:**
  - ▸ Static (existing) PSBs
  - ▸ Dynamic PSBs

- **Process databases in alternate sequences using secondary indexes**

- **Support for** HDAM, HIDAM, HISAM, HSAM, DEDB. MSDB

- **Optional audit trail to record database updates**

- **Optionally use COBOL or PL/I segment layouts to format data into fields**
  - ▸ Edit and Browse segments in tabular or character format
  - ▸ Access source in PDS, PDSE, or Panvalet libraries

- **Work with segments that have multiple layouts**

- **Use flexible criteria to select segments for browse, edit, and extract processing**

- **Change segment selection criteria and formatting "on the fly", while browsing or editing**

# File Manager CICS Features
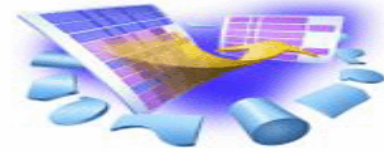
- ISPF-like panels
- Full function edit and browse
  - ▶ Table
  - ▶ Single
- Flexible selection criteria
  - ▶ Work with copybooks or templates
- Modes Of Operation
  - ▶ Interactive
    - ▪ CICS

- CICS Resource
  - ▶ File
  - ▶ Temporary Storage
  - ▶ Transient Data
- Print data
- List Resources
- Interface to File Manager z/OS
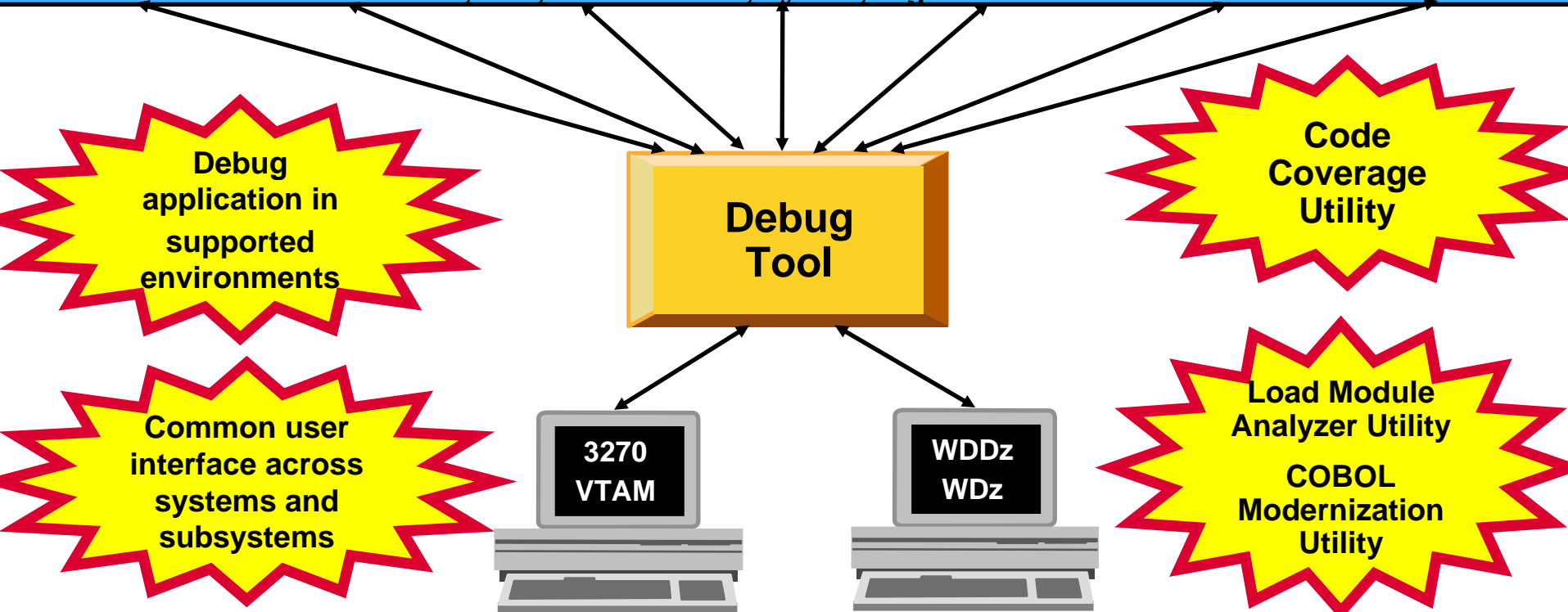- Interface to File Manager IMS

# Debug Utilities and Advanced Functions – *Debugging of enterprise applications to isolate coding issues*
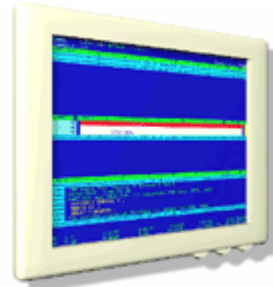
**Improve**

| BATCH | IMS | TSO | CICS | DB2 | USS | Web Sphere |
|-------|-----|-----|------|-----|-----|------------|

**Language Environment**

**Application Languages**

**COBOL, PL/I, ASSEMBLER, C, C++, High Performance Java**

**Debug Tool**

**Debug application in supported environments**

**Code Coverage Utility**

**Common user interface across systems and subsystems**

**3270 VTAM**

**WDDz WDz**

**Load Module Analyzer Utility**

**COBOL Modernization Utility**

# Debug Tool Utilities and Advanced Functions Features

- Source-level debugging
- Multiple breakpoints
  - Conditional
  - Unconditional
- Step mode debugging
- Dynamic patching
  - Modify variables
  - Insert statements
- Command logging of debugging session
- Frequency sampler
- Programmable command entry

- Utilizes LE services
  - Breakpoints at LE condition
  - Recovery of program abends
- Interactive playback support
- Automonitor support for COBOL, PL/I, and Assembler programs
- Save and restore sessions settings
- An interface to the Fault Analyzer
- Commands to query, allocate, and free files
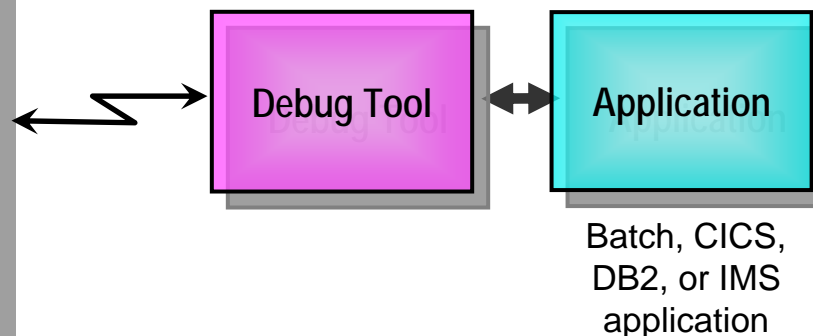- Object level disassembly debugging

# How do I interface with Debug Tool UAF?



```
Session A - STLMVS1.WS - [24 x 80]
COBOL    LOCATION: CBLATP2 :> 543.1
Command ===>                                              Scroll ===> PAGE
MONITOR --+----1----+----2----+----3----+----4----+----5----+----6 LINE: 1 OF 4
************************* TOP OF MONITOR *********************************
0001  1 OUTPUT-FLAG   'D'
0002  2 H1-CURR-DATE  '01/05/03'
0003  3 GM-MSG-ID     '01I'
0004  4 ACTION        '    '
************************* BOTTOM OF MONITOR *****************************

SOURCE: CBLATP2 --1----+----2----+----3----+----4----+----5--- LINE: 541 OF 939
    541
    542          DISPLAY 'ENTER Action:'.
    543          ACCEPT SCREEN-INPUT.
    544          MOVE FUNCTION UPPER-CASE (SCREEN-INPUT) to ACTION.
    545
    546       ** End program when EXIT is entered and
LOG 0----+----1----+----2----+----3----+----4----+----5----+---- LINE: 36 OF 39
0036  GO ;
0037 You were prompted because the IGZ00H  condition was raised in your program
0038 IGZ00H is a severity or class 3 condition.
0039 The current location is CBLATP2 ::> CBLATP2 :> 543.1.
PF  1:MON       2:STEP      3:QUIT      4:LIST      5:FIND      6:AT/CLEAR
PF  7:UP        8:DOWN      9:GO       10:ZOOM     11:ZOOM LOG 12:RETRIEVE
MA     a                              A                              03/002
```
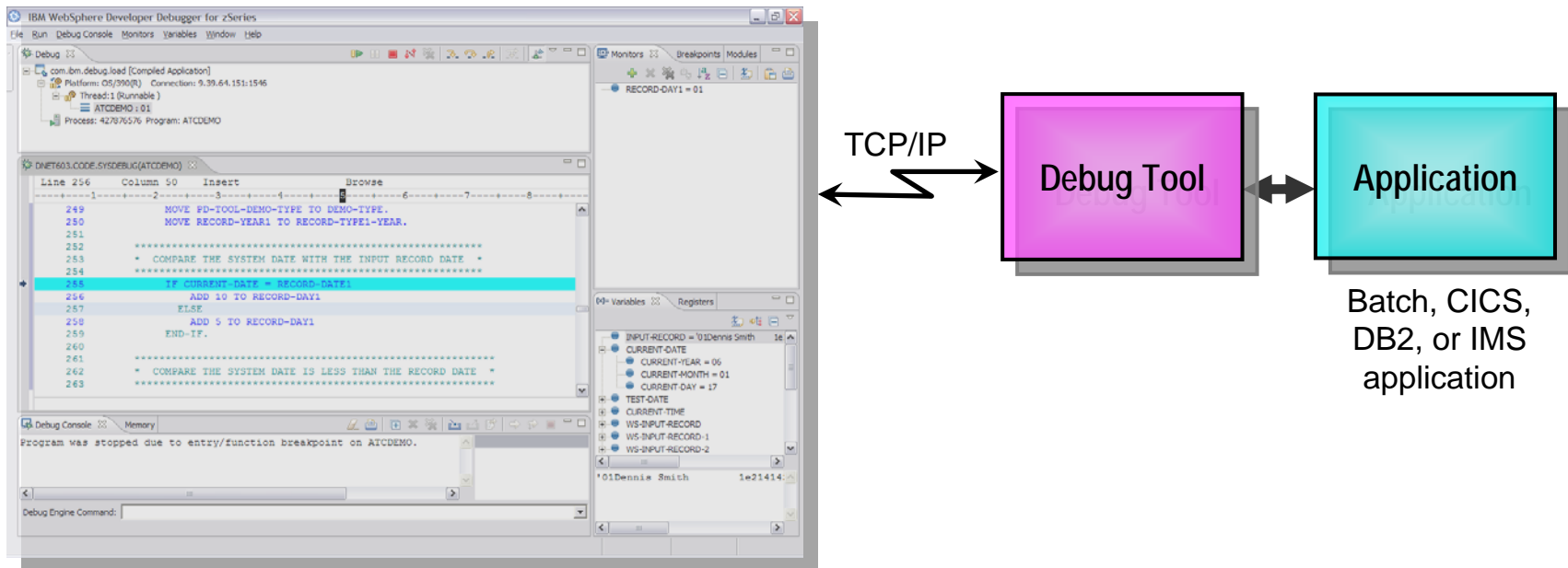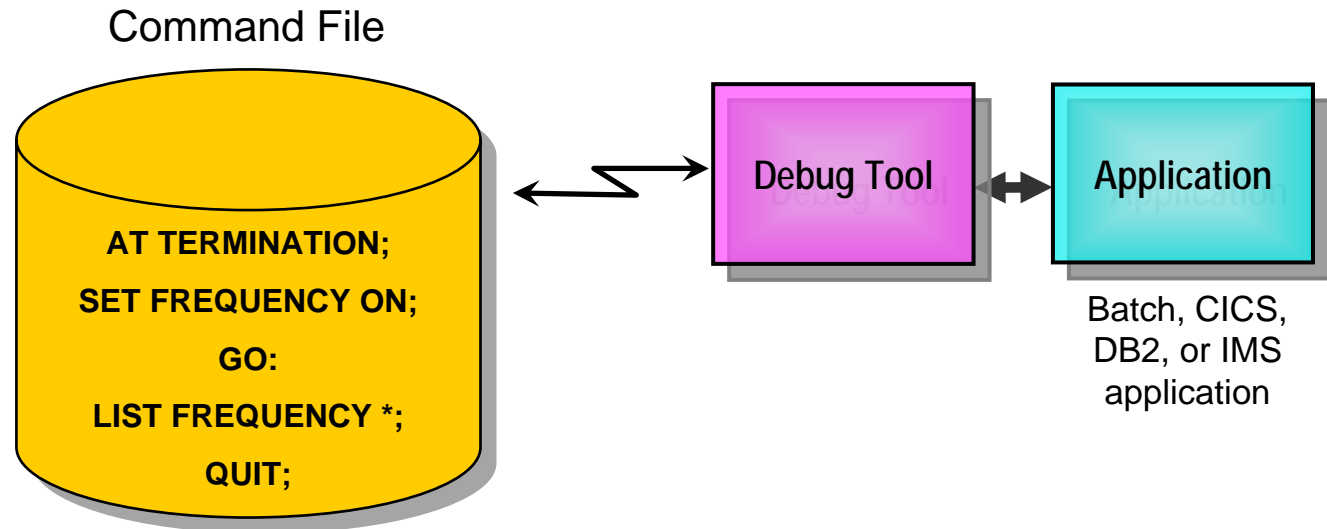
Debug Tool ←→ Application

Batch, CICS, DB2, or IMS application

- **Full-screen mode**
  - ▸ 3270 interface
  - ▸ Work with Debug Tool from a VTAM terminal
  - ▸ Common interface for all z/OS runtimes, CICS, JES, IMS TM, DB2 Stored Procedures, etc.
  - ▸ Debug Tool uses a terminal that you specify… your CICS or TSO terminal can be used

# How do I interface with Debug Tool UAF?



TCP/IP

Debug Tool ⟷ Application

Batch, CICS, DB2, or IMS application

- *Websphere Developer Debugger for zSystems (WDDz):*
  - ▸ the host application starts Debug Tool, which connects to a remote debugger on your workstation
  - ▸ Point and Click ease of use
  - ▸ Uses the GUI debug interface built into products such as:
    - ▪ *Eclipsed based Websphere Developer for zSystems (WDz)*

# How do I interface with Debug Tool UAF?

Command File

**AT TERMINATION;**

**SET FREQUENCY ON;**

**GO:**

**LIST FREQUENCY *;**

**QUIT;**

Debug Tool

Application

Batch, CICS, DB2, or IMS application

- Debug Tool "Batch" Command File mode
  - ▸ Invoke the application in the **background** under the control of Debug Tool commands
  - ▸ Can drive the program to exception conditions and log runtime results for later diagnosis
  - ▸ For creation of:
    - ▪ Regression Test cases
    - ▪ Production Runtime problem diagnosis

# Code Coverage Utility Features

- Does not require any updates to the test case runtimes
- Supports any number of testers running multiple executions
- Accumulates coverage statics accorss multiple runs
- Reports statement coverage
- Reports statement frequency
- Reports branch execution
- Provides 1403 reports for coverage
- Generates XML report output for migration
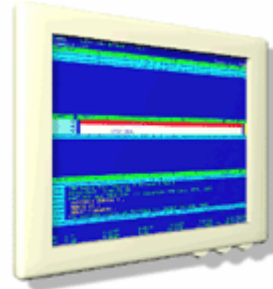
# Load Module Analyzer Utility Features
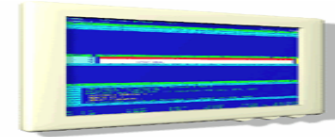
- Reports compiler versions for all CSECTs that make up a load module

- Reports compile dates for all CSECTs that make up a load module

- Can be exectuted interactively from ISPF panels

- Can be submitted to run in batch

- Report display options are configurable:

  ▸ Utility report features

  ▸ Filter compiler versions reported

  ▸ Filter CSECTs that are part of the LE runtime

  ▸ Filter CSECTs that are part of the compiler
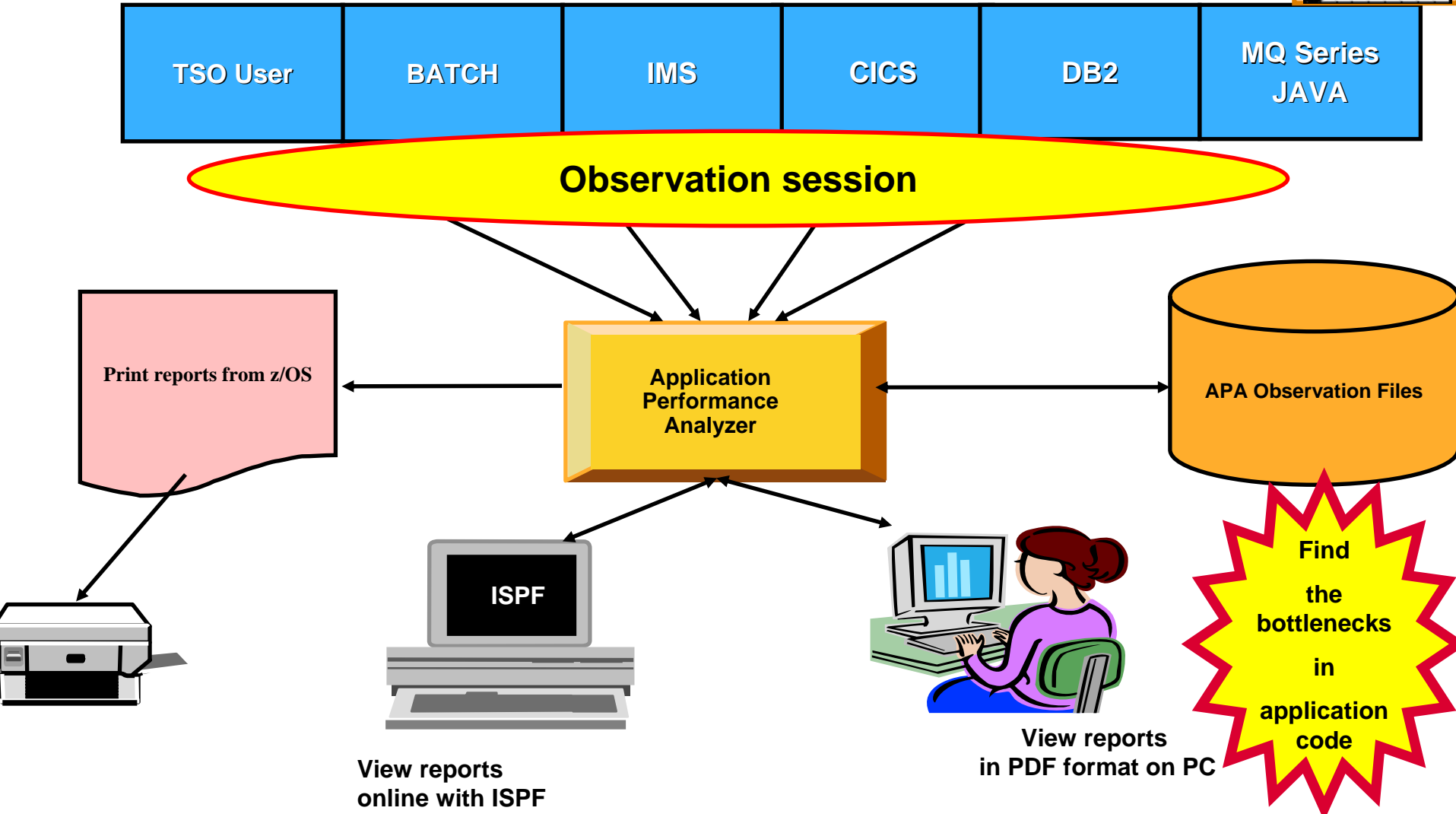
# COBOL Modernization Utility Features
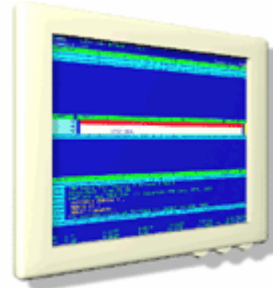
- Supports reporting and converting COBOL
- Converts standard 68 and 74 standard to 85
  - ▸ Reviews, reports, and converts COBOL source (including copybooks)
- Identifies COBOL language elements and CICS commands in the input source programs that are:
  - ▸ Not supported by the target language
  - ▸ Supported in a different manner
- Converts COBOL 74 & 68 elements to the equivalent in the target language
- Reports identification of source requiring conversion for COBOL 68 & 74 to COBOL 85
- Converts any COBOL compiler to current version fixing new KEYWORDS, etc
- Converted Source
  - ▸ Converted COBOL program source
  - ▸ Converted COBOL copy files
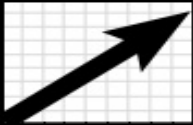
# Application Performance Analyzer - *Provides rapid pinpointing of enterprise application bottlenecks*

**Improve**

| TSO User | BATCH | IMS | CICS | DB2 | MQ Series JAVA |
|----------|-------|-----|------|-----|----------------|

**Observation session**

**Print reports from z/OS**

**Application Performance Analyzer**

**APA Observation Files**

**ISPF**

**Find the bottlenecks in application code**

**View reports online with ISPF**

**View reports in PDF format on PC**

# Application Performance Analyzer Features

- Summary/Profile reports with drill down into detailed levels via an ISPF interface or PDF hardcopy

- CPU, Load Module, and CSECT analysis of all modules in the address space

- Source statement (COBOL or PL1) or instruction utilization in each CSECT

- Supports Fault Analyzer / Debug Tool Sidefiles

- Wait time analysis by category, task/module, or attribution

- DASD I/O analysis by device, DDNAME, dataset and dataset attributes, EXCP's, VSAM with buffer pool, I/O wait, over time

- SYSPLES coupling facility reports

# Application Performance Analyzer Features

- DB2 SQL analysis – static and dynamic – service times

- DB2 analysis by DBRM, statement, and plan

- CICS session statistics, transaction analysis by CPU usage, mean and total service time, and waits by transaction

- IMS CPU and service time analysis

- MQSeries analysis by queue, request, and transaction

- JAVA

- Interval reporting

- Adjustable sampling rate

- Repeated observation sessions

- Internal (APA) and external (RACF, etc) security

# Application Performance Analyzer Features

- **Types of Observation Sessions**
  - ▸ Real-Time
  - ▸ Scheduled
  - ▸ Via batch submission

- **Non-intrusive performance analyzer for applications and systems programmerss to**
  - ▸ Improve response time in online applications
  - ▸ Improve batch turn around time
  - ▸ Identify excessive I/O activity
  - ▸ Identify excessive CPU usage
  - ▸ Test the effects of increasing workload
  - ▸ Isolate performance problems in new and existing applications

# Application Performance Analyzer Report Summary

## CICS
Session Statistics
CPU Usage by Txn
Mean Service Time by Txn
Total Service Time by Txn
Service Time by Task Id
Wait Time by Txn

## Storage & Statistics
Measurement Profile
Load Module Attributes
Load Module Summary
TCB Summary
Memory Usage Timeline
Data Space Usage Timeline
TCB Execution Summary
Processor Utilization Summary

## DB2
Measurement Profile
SQL Wait Time by Statement
SQL Activity Timeline
SQL Wait Time by Plan
SQL Activity by DBRM
SQL CPU/Svc Time by DBRM
SQL Activity by Statement
SQL CPU/Svc Time by Stmt
SQL Activity by Plan
SQL CPU/Svc Time by Plan
SQL Statement Attributes
SQL Threads Analysis
SQL Wait Time by DBRM
CPU by Plan/Stored Proc

## Wait
Time by Task/Category
Time by Task/Module
Time Referred Attribution

## CPU
Usage by Category
Usage by Procedure
Usage by Module
Referred Attribution
Usage by Code Slice
Usage Timeline
Usage Task/Category
Usage Task/Module

## MQSeries
Activity Summary
Serv Time by Txn
CPU Usage by Queue
Wait Time by Queue
CPU Usage by Request
Wait Time by Reque
CPU Usage by Txn
Wait Time by Txn
Serv Time by Queue
Serv Time by Request

## IMS
Measurement Profile
DL/I Call Timeline
DL/I Transaction Timeline
Transaction Activity Timeline
Usage by PSB
Usage by Transaction
Usage by DL/I Call
Transaction Service Times
Transaction DL/I Counts

## DASD
Usage by Device
Activity Timeline
Usage by DDNAME
I/O Wait Time
Usage by Dataset
VSAM Buffer Pool Usage
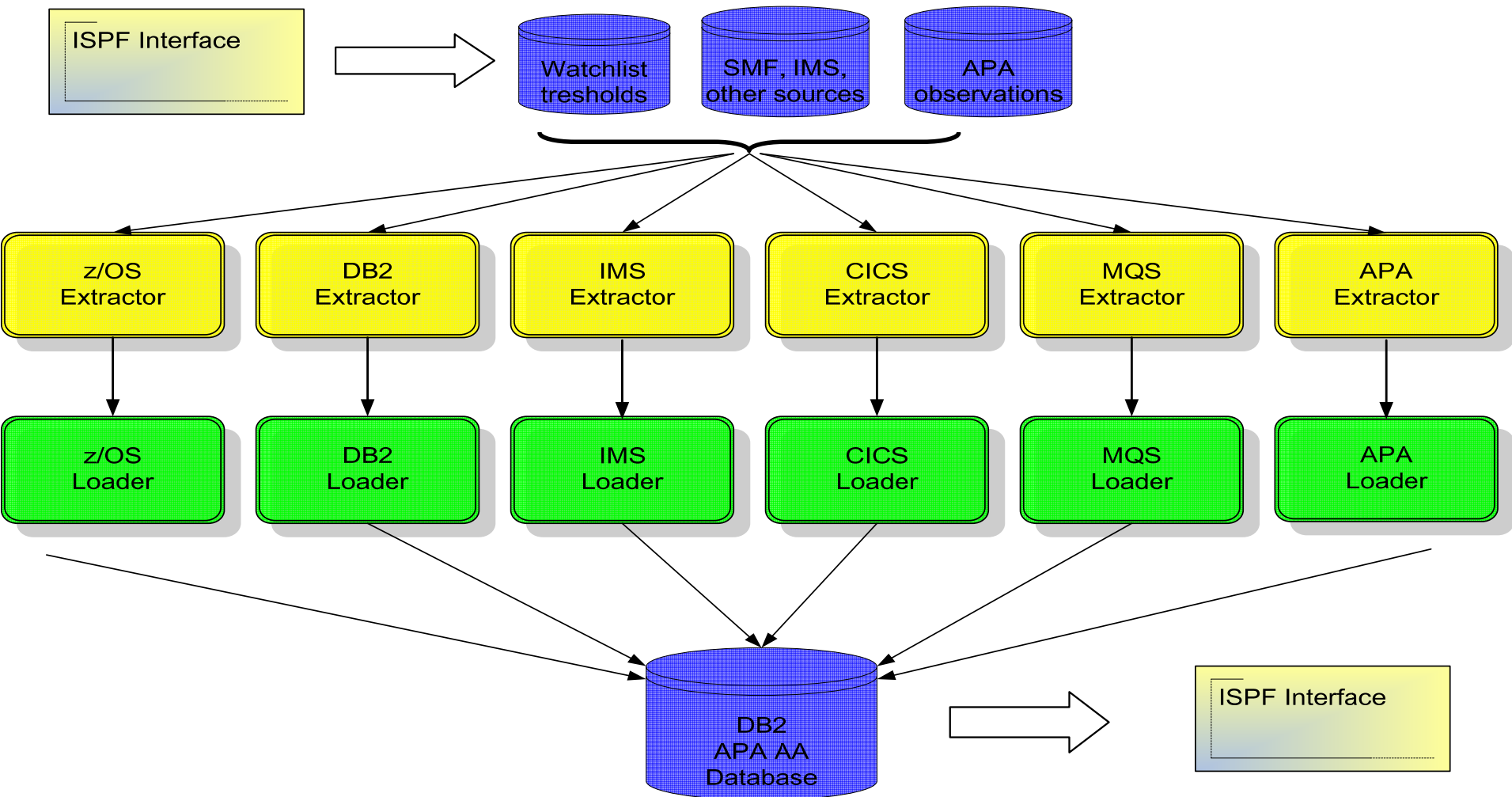Dataset Attributes
Summary
DASD VSAM Statistics

## Coupling Facility
Summary
Mean Times
Facility Total Times

# Application Performance Analyzer
# Automation Assistant - *Provides automation and integration of*
*Application Performance Analyzer and its reports*

Improve

ISPF Interface

Watchlist tresholds

SMF, IMS, other sources

APA observations

| z/OS Extractor | DB2 Extractor | IMS Extractor | CICS Extractor | MQS Extractor | APA Extractor |

| z/OS Loader | DB2 Loader | IMS Loader | CICS Loader | MQS Loader | APA Loader |

DB2
APA AA
Database

ISPF Interface

# Application Performance Analyzer Automation Assistant Features

- Can eliminate up to 90% of the manual effort to manage application performance

- Reduces CPU utilization by definition of threshold values

- Allows customer to focus tuning efforts on jobs with the greatest CPU and runtime savings potential with user-defined thresholds

- Automatically identifies tuning opportunities across your entire batch and online mainframe environment, including Parallel Sysplex

- Provides measurement results that can be analyzed and stored

- Monitors program changes

- Provides performance history

- Environment and Threshold definitions (Watchlist)
  - <u>Environment:</u> Sysplex and Subsystem description
  - <u>Threshold:</u> To determine the candidates for a deeper analysis, two types available:
    - Absolute field values (CPU time, number of I/O, …)
    - Relative performance fields (CPU consumption per second, I/O per second, …)

- Include / Exclude Lists

- Filtering candidates in batch

- ISPF Interface
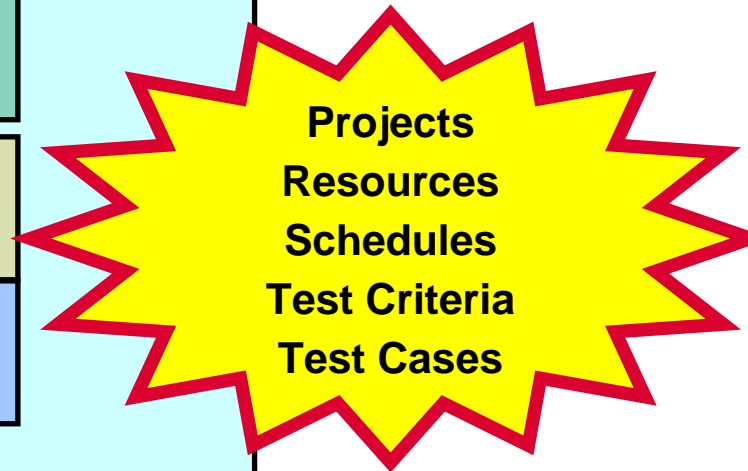  - To retrieve data from the APA AA DB2 Performance Data Warehouse and show the candidates on Watchlists.

# Workload Simulator - *Conducts Reliable Stress, Performance, Regression, Function And Capacity Planning Tests*

**Improve**

**z/OS and OS/390**

| Applications under test |
|---|
| VTAM |
| Workload Simulator |

**Projects**
**Resources**
**Schedules**
**Test Criteria**
**Test Cases**

**Improve application RAS**

**Plan for growth**

# Workload Simulator Features

- Auto Generation Of Scripts

- Auto Generation Of Networks

- Controls Resource During Runs

- Simulates Different Terminals, Terminal Features And Terminal Operator Actions

- Executes Independently Of The System Under Test

- Provides utilities for post-test analysis

- REXX-like scripting language

- Conducts Reliable Stress, Performance, Regression, Function And Capacity Planning Tests

- Consistent Across Protocols
  - SNA, CPI-C, TCP/IP

- Consistent Across Operating Systems
  - z/OS & OS/390, MVS/ESA, VM/ESA

# Rational Functional Tester Ext z/OS Features

- Provides novice testers with automated capabilities for activities such as data-driven testing

- Offers advanced testers a choice of scripting language and industrial-strength editor: Java in Eclipse® or Microsoft® Visual Basic .NET® in Visual Studio .NET - for test authoring and customization

- Provides an advanced, automated functional and regression tool for tester and graphical user interface (GUI) developers

- Includes ScriptAssure™ technology and pattern-matching capabilities to improve test script resiliency for frequent application user interface changes

- Supports version control to enable parallel development of test scripts and concurrent usage by geographically distributed teams

- Supports testing of 3270 (zSeries™) and 5250 (iSeries™) applications using the IBM Rational Functional Tester Extension for Terminal-based Applications

- Provides automated functional and regression testing for Siebel 7.7, 7.8 and SAP ®applications

- Operating systems supported: Linux

- A choice of scripting language and industrial-strength editor for test authoring and customization

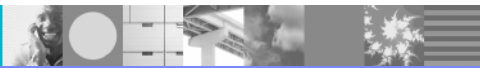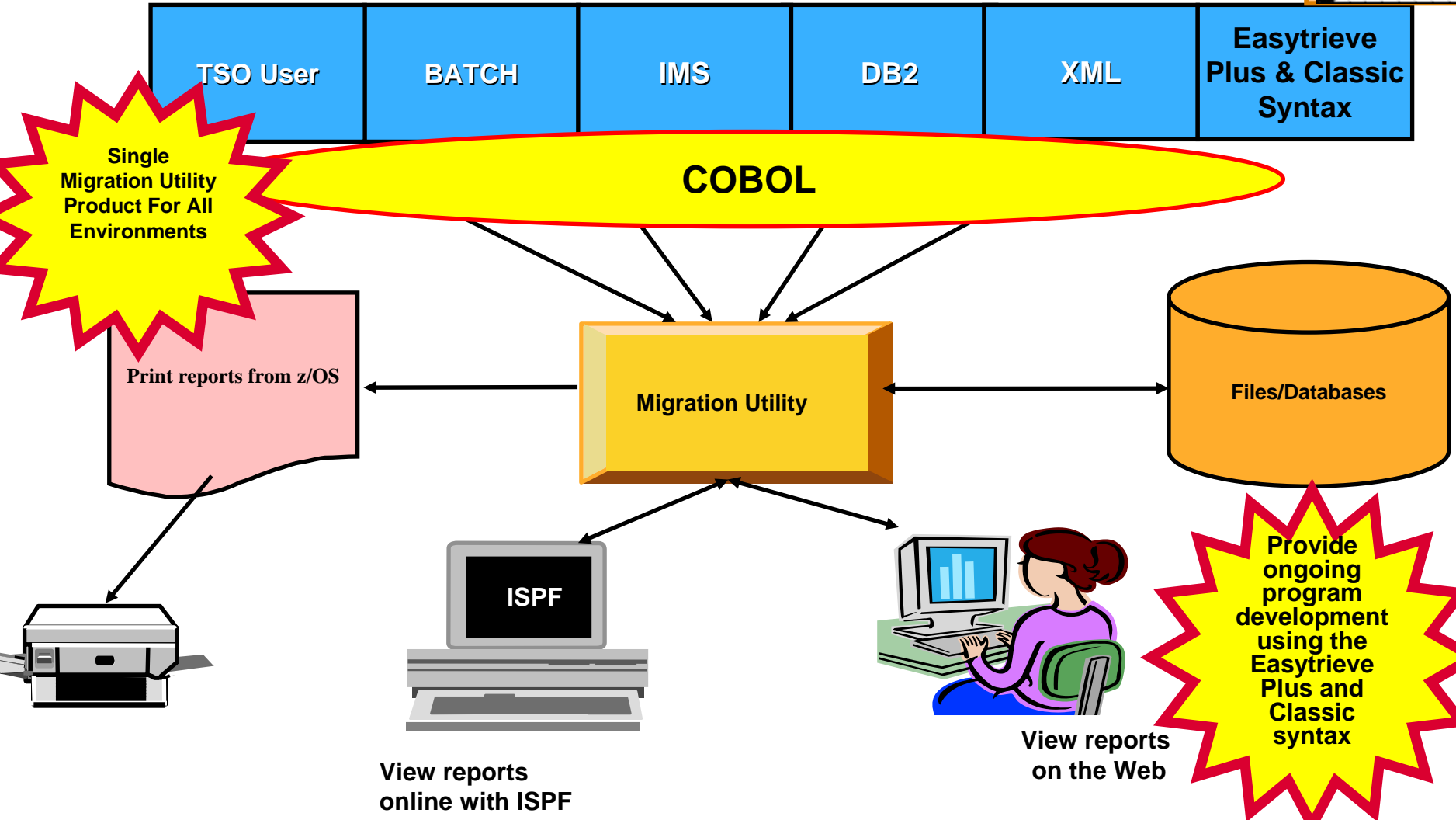# Rational Performance Tester Ext z/OS Features

- Multiple ease of use features with powerful testing abilities simplify test creation, load generation and the analysis processes help ensure applications accommodate loads

- Provides a multi-user load and performance testing solution for Web-based applications with browser-like display of each Web page within a test

- Simplifies test creation, load generation and analysis processes

- Includes multiple easy-to-use features with powerful testing capabilities, and delivers both high-level and detailed test views

- Provides Windows®- and Linux®-based user interfaces with z/OS-hosted test execution

- Enables immediate recognition of performance problems via real-time reporting

- Enables large multi-user tests with limited hardware resources -- low memory and processor footprint

- Permits Java code insertion for flexible customization and modeling for diverse user populations

- Operating systems supported: Linux, Windows

# Migration Utility - *Provides rapid development for adhoc requests*

**Improve**

| TSO User | BATCH | IMS | DB2 | XML | Easytrieve Plus & Classic Syntax |
|----------|-------|-----|-----|-----|-----------------------------------|

**COBOL**

**Single Migration Utility Product For All Environments**

Print reports from z/OS

**Migration Utility**

**Files/Databases**

**ISPF**

**View reports online with ISPF**

**View reports on the Web**

**Provide ongoing program development using the Easytrieve Plus and Classic syntax**

# Migration Utility Features

- ▶ Existing and new Easytrieve Plus & Easytrieve Classic programs using Easytrieve Plus language can be processed by the Migration Utility product

  - ▪ Source code, written in Easytrieve Plus, Easytrieve Classic

  - ▪ can continue to be maintained

- ▶ Programs written using Easytrieve Plus or Easytrieve Classic language can be converted to standard IBM COBOL

- ▶ Creates IBM standard COBOL syntax from Easytrieve Plus or Easytrieve Classic language statements without Easytrieve Plus installed

- ▶ Discovery Utility

- ▶ Batch Conversion Utility

- ▶ Parallel Testing and Electronic Output Comparison Utility

- ▶ Enables re-use of existing compiler JCL with only minor changes

- ▶ Enables re-use of existing application JCL with only minor changes

# Migration Utility Features

- Provide automated conversion of Easytrieve Plus or Easytrieve Classic programs to COBOL

- Provide ongoing program development using the Easytrieve Plus or Easytrieve Classic syntax

- Provide an affordable high level development tool for COBOL Environment

- Provide a tool that will keep up with the changes in hardware technology

- Enables User to retain Easytrieve ease of use at a much lower cost
  - ▶ Lower annual cost
  - ▶ Possible machine cycle savings at run time

# Application Time Facility – *Easy for programmers to specify the jobs to receive simulated dates*

Improve

| BATCH | IMS | TSO | CICS | DB2 |
|-------|-----|-----|------|-----|

COBOL, PL/I, Assembler, CLIST, REXX EXEC

IDMS
IDEAL
Natural
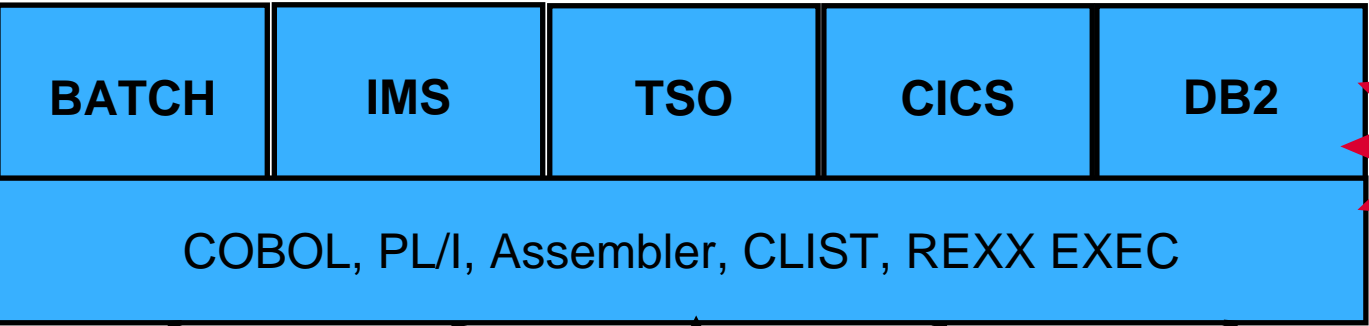
**Application Time Facility**
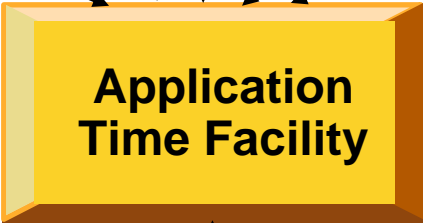
**Helps software development teams ensure their software performs as intended**

ISPF

# Application Time Facility Features

- Shifts time zones for on-line regions so users will see their local time or, so dated application file updates will have the local time

- Restarts a failing job at the date/time it failed, ensuring that file update and reports are not affected

- Allows jobs that, due to unavoidable circumstances, run over a deadline to finish "on time"

- Handles all clock formats including decimal, binary, timer units, microseconds and TOD clock format

- On-line ISPF interface makes it easy for programmers to specify the jobs to receive simulated dates on an individual basis, or as generic groups by using a wild card

- Allows testing of applications that are reliant upon timing, time zones, or time and date formatting without changing z/Series system date / time settings

**November 4th new DST Date**

# File Export Utility - *Flexible solution for exporting and importing related sets of enterprise data*

**Improve**

| QSAM | VSAM | Batch Data Manipulation Engine | DB2 | IMS |
|------|------|-------------------------------|-----|-----|

File Export Repository, Language Parsers, Session Store, Generated JCL

**File Export Utility**

**Extract related data from multiple sources**

**Reformat data, scramble sensitive data, create Nth selections of data, and. exploit application defined data relationships**

**ISPF**
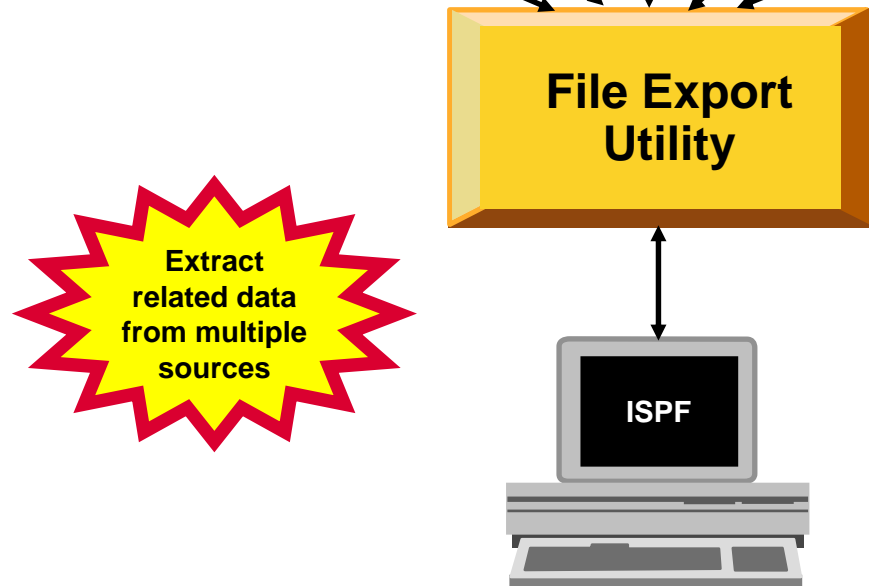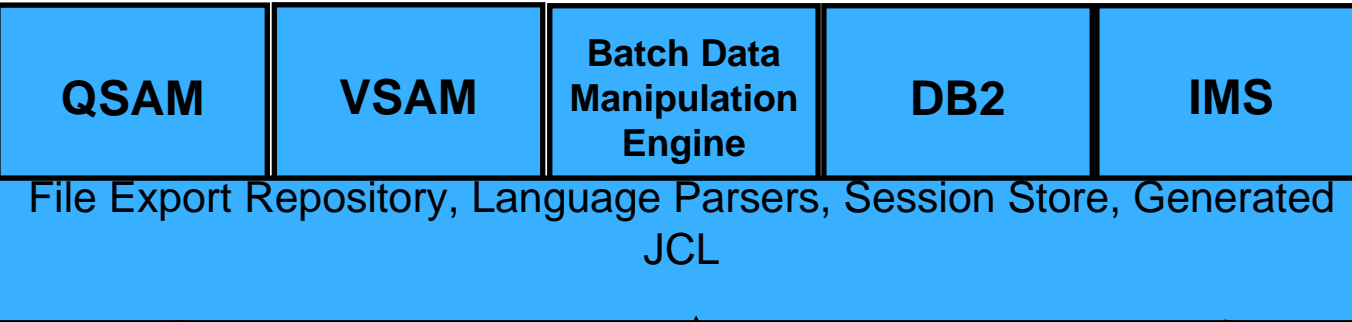
# File Export Utility Features

- Flexible solution for exporting and importing related sets of enterprise data

- Provides for one-to-one, one-to-many and many-to-one data creation

- Copies all data in a related set of objects or a slice of data across a related set of objects

- Supports application defined relationships

- Includes highly flexible data selection and transformation rules

- Gives the user the option to protect sensitive data on a field by field basis

- Supports altering data content while copying

- Includes a repository in which common persistent information about your data is stored

- Offers highly selective data copying capabilities that simplify the complex task of populating test environments, or migrating applications to new or additional environments

# ISPF Productivity Tool – *Enhances TSO ISPF productivity*
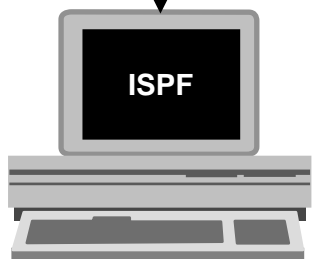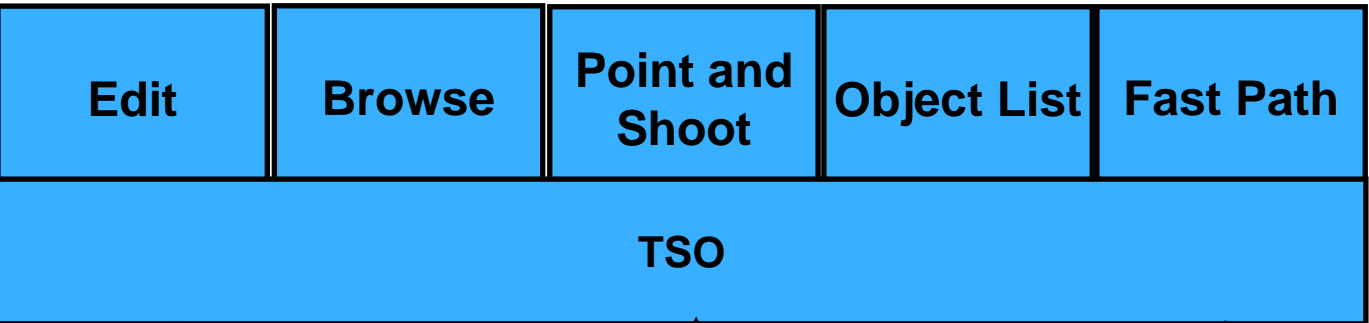
**Improve**

| Edit | Browse | Point and Shoot | Object List | Fast Path |
|------|--------|-----------------|-------------|-----------|
| TSO | | | | |

**ISPF Productivity Tool**

**ISPF**

**Increases the productivity of ISPF users by packing various ISPF functions into the areas in which programmers most frequently work**

# ISPF Productivity Tool Features

- Consolidates commands within a single panel

- Presents a comprehensive, object-oriented, project-related list of data sets

- Provides extensive point & shoot capabilities

- Extended TSO command execution

- Automatic PDS compression

- Reduces keystrokes and EXCP counts

- Enhanced print and clipboard capabilities

- Improves ISPF navigation

- SCLM, Librarian, Panvalet Library support

- IPT increases the productivity of ISPF users by packing various ISPF functions into the areas in which programmers most frequently work, such as browse, edit ,member lists, and dataset lists.

- New commands and functions reduce the need to navigate to additional panels to perform utility functions. This results in reduced keystrokes and increase productivity.

# Websphere Developer for System z - *Accelerates the development of your Web applications, traditional COBOL and PL/I applications, Web services and XML-based interfaces.*

- Challenges - Islands of development

  - ▸ Duplicate infrastructures limit IT and skills flexibility, introduce errors, reduce productivity
  - ▸ Constrained IT flexibility due to skills islands (JAVA vs. COBOL)
  - ▸ Multiple infrastructures, vendors, tools, increased costs, less $'s available for new projects
  - ▸ Lack of traceability inhibits end-to-end governance
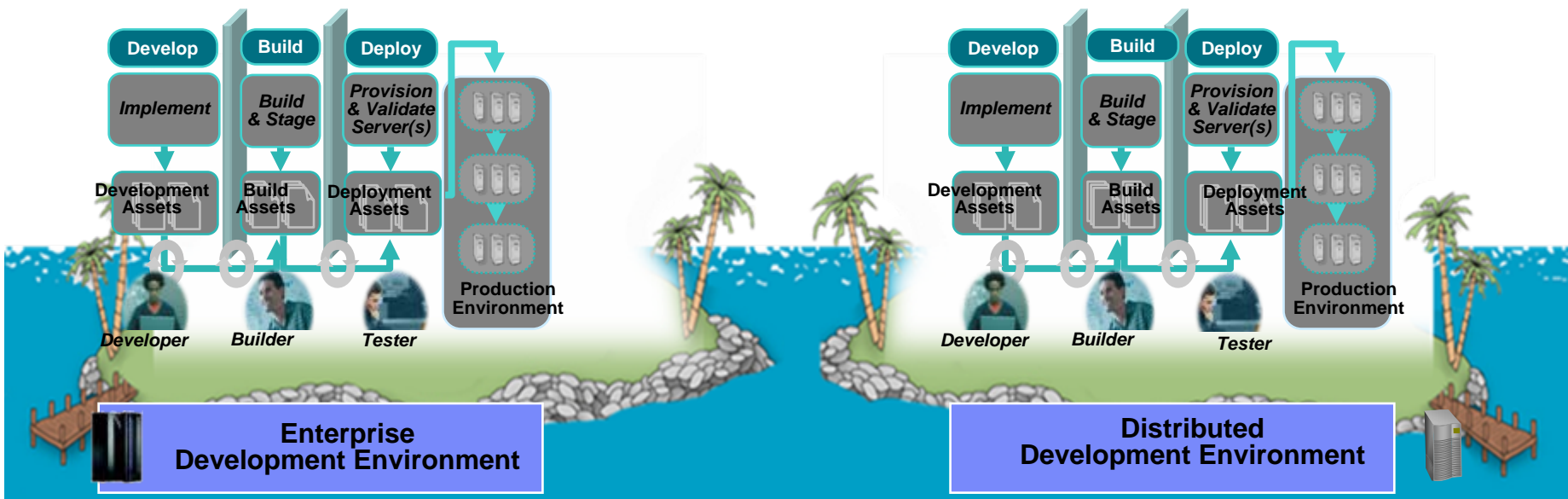
# Websphere Developer for System z Features

- z/OS and unix system services development
    - ▸ Provides an interactive workstation-based environment to help create, maintain and reuse applications for traditional processing or for inclusion in an SOA
    - ▸ Provides easy access to IBM z/OS and UNIX System Services datasets
    - ▸ Helps create Assembler, COBOL, PL/I, C, and C++ applications via:
        - Remote syntax check
        - content assist
        - visual BMS mapping and JCL generation capabilities
        - visual MFS editor
        - color coded editing
    - ▸ Support for
        - CICS
        - IMS
        - Batch
        - DB2 and DB2 stored procedures
    - ▸ Debug and test CICS and IMS system-based code!
    - ▸ Remote compile generation, build and deployment support

# Advantages

- z/OS Problem Determination and Deployment Tools that:
  - ▶ Exploits IBM's latest software and processor technology
  - ▶ Offer wide array of key features and functions
  - ▶ Can enhance the Application Development Lifecycle
  - ▶ Provide opportunity for increased user productivity
  - ▶ Are affordably priced
  - ▶ Have flexible terms and conditions
  - ▶ Have no license keys

# For More Information

- **z/OS Problem Determination and Deployment Tools**
  - ▶ **www.ibm.com/software/awdtools/deployment**
  - ▶ **www.ibm.com/software/awdtools/faultanalyzer**
  - ▶ **www.ibm.com/software/awdtools/filemanager**
  - ▶ **www.ibm.com/software/awdtools/debugtool**
  - ▶ **www.ibm.com/software/awdtools/apa**
  - ▶ **www.ibm.com/software/awdtools/apaaa**
  - ▶ **www.ibm.com/software/awdtools/workloadsimulator**
  - ▶ **www.ibm.com/software/awdtools/tester/functional**
  - ▶ **www.ibm.com/software/awdtools/tester/performance/zos**
  - ▶ **www.ibm.com/software/awdtools/migration**
  - ▶ **www.ibm.com/software/awdtools/tictoc/**
  - ▶ **www.ibm.com/software/awdtools/ispfproductivitytool**
  - ▶ **www.ibm.com/software/awdtools/fileexport**

# For more information

- **Help Center**

  - **http://publib.boulder.ibm.com/infocenter/pdthelp/v1r1/index.jsp**

- **Redbooks**

  - **www.redbooks.ibm.com/abstracts/sg247372.html**

# For More Information

- **Training**
  - ▶ Services
    - Mentor Workshops
  - ▶ Free Web-based
    - **Application Performance Analyzer**
      - http://publib.boulder.ibm.com/infocenter/ieduasst/stgv1r0/index.jsp
    - **Debug Tools Utilities and Advanced Functions**
      - http://publib.boulder.ibm.com/infocenter/ieduasst/stgv1r0/index.jsp
    - **Fault Analyzer**
      - http://publib.boulder.ibm.com/infocenter/ieduasst/stgv1r0/index.jsp
    - **File Manager**
      - http://publib.boulder.ibm.com/infocenter/ieduasst/stgv1r0/index.jsp
    - **Workload Simulator**
      - http://www-128.ibm.com/developerworks/websphere/education/enablement/wbt/sw747.html

- **z/OS Problem Determination and Deployment Tools Can Be Ordered From Your IBM z/Series Sales Representative**

# IBM PD Tools Product Identification

- Fault Analyzer for z/OS (5655-R46 )
- File Manager for z/OS (5655-R47)
- Debug Tool for z/OS (5655-R44)
- Debug Tool Utilities and Advanced Functions for z/OS (5655-R45)
- Application Performance Analyzer for z/OS (5697-N53)
- Application Performance Analyzer Automation Assistant for z/OS (5799-HGC)
- Workload Simulator for z/OS & OS/390 (5655-I39)
- Migration Utility for z/OS (5697-N44)
- Rational Functional Tester (5726-J07)
- Rational Performance Tester for z/OS (5724-J96)
- Application Time Facility for z/OS (5697-N42)
- ISPF Productivity Tool for z/OS (5698-A81)
- File Export Utility for z/OS (5697-I12)