

# State of California IBM Problem Determination Tools



April 2014



# Agenda

- State of CA Kick Off - Robert
- General ISV replacement
- Mapping of Compuware Tools to IBM PD Tools - added functionality
- History of PD Tools
- High Level PD Tools
- PIDS and Solution Packs
- Why Switch to IBM PD Tools
- Why do some PUSH back
- Analyst Review
- Status of Compuware
- High Level Technical Review – GUIs - Direction
- What has technically occurred at State of CA on PD Tools
- Customer Examples of Training and Migration
- State of CA installation, education and migration
- Q&A
- Closing remarks

# Mainframe Update

- Single largest OTech Service Offering
  - Under significant financial pressure
  - Software single largest expense
  - Personnel second largest expense
- Recent Actions
  - Aggressive hardware negotiations
    - Competitively bid disk acquisitions
  - Aggressive software negotiations
  - Eliminate duplicative software products
  - Review alternatives as software contracts come up for renewal
- Recent success
  - Eliminated a number of duplicative Computer Associate products
  - Migrated off CA's (Platinum) DB2 Tools
  - Saving \$2M+ yearly

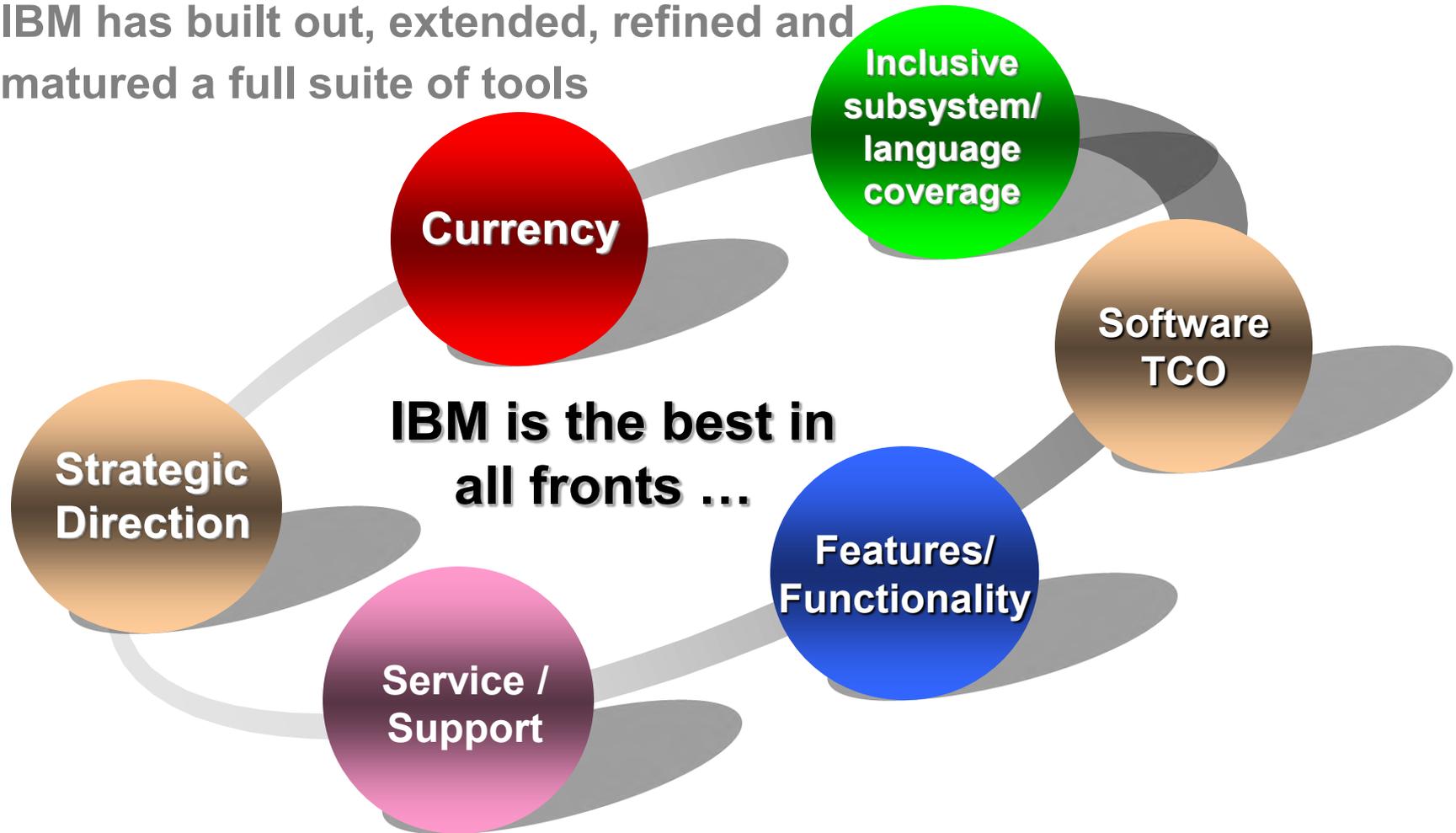
# Mainframe Update

- Compuware
  - Contract expires 3/31/2015
  - Evaluated the IBM PDTools Suite over the last 3 years
    - Long time user of Debug Tool
  - Attempted to negotiate a favorable contract extension
- IBM
  - Made a very aggressive proposal as part of ELA negotiation
  - 3 year contract agreed to 10/1/2013
- OTech
  - Installed V12 of the IBM PDTools Suite on all complexes
    - Ready for use
  - Worked with IBM to develop migration plan
    - Training available
  - Will evaluate PDTools V13 once migration is complete or need arises
  - Current focus on migration, will add GUIs as time permits

# ISV REPLACEMENT

**After 14 years of intense in-house development ...**

IBM has built out, extended, refined and matured a full suite of tools



# Eliminate Complexity and Multiple Products



## Compuware Products

Licensed in RED

|   |  |
|---|--|
| <b>Abend-AID/XLS w/ Primary Language COBOL</b>                  |  |
| Abend-AID/DB2   |  |
| Abend-AID/IMS   |  |
| Abend-AID/IDMS  |  |
| <b>Abend-AID for CICS w COBOL</b>                               |  |
| <b>Abend-AID for CICS - DB2</b>                                 |  |
| Abend-AID for CICS - WebSphere MQ                               |  |
| Abend-AID for WebSphere MQ                                      |  |
| Abend-AID Fault Manager   |  |
| Additional Language Options: Assembler, PL1                     |  |
| <hr/>   |  |
| <b>Xpediter/TSO w/COBOL</b>                                     |  |
| <b>XP/TSO Additional Language Options: , Assembler and PL1</b>  |  |
| <b>Xpediter/CICS w/ COBOL</b>                                   |  |
| <b>XP/CICS Additional Language Options: , Assembler and PL1</b> |  |
| Xpediter for IMS w/COBOL  |  |
| Xpediter for DB2  |  |
| <b>Xpediter for DB2 stored procedures</b>                       |  |
| Xpediter/Code Coverage  |  |
| <hr/>   |  |
| <b>File-AID/MVS</b>   |  |
| File-AID/DB2  |  |
| File-AID/IMS  |  |
| IMS TSO/ISFP Support  |  |
| IMS DC Environment  |  |
| IMS Fastpath  |  |
| IMS FLEX  |  |
| IMS CICS Environment  |  |
| <b>File-AID DataSolutions</b>                                   |  |
| DBA Xpert for DB2   |  |
| <hr/>   |  |
| <b>Hiperstation for VTAM *a*b</b>                               |  |
| <hr/>   |  |
| <b>Strobe MVS for Sysplex</b>                                   |  |
| AutoStrobe  |  |
| Strobe Advanced SMF   |  |
| <b>Strobe CICS Feature</b>                                      |  |
| <b>Strobe DB2 Feature</b>                                       |  |
| Strobe for DB2 DDF  |  |
| Strobe IMS Feature  |  |
| Strobe WebSphere MQ   |  |
| Strobe for WebSphere Application Server                         |  |
| <b>Strobe ADABAS/Natural Feature</b>                            |  |
| Strobe Unix SS  |  |
| <b>Strobe Cobol Feature</b>                                     |  |
| Strobe PL/I Feature   |  |
| Strobe C Feature V2   |  |
| Strobe Java Feature   |  |
| Strobe Interface Feature  |  |
| <b>ISStrobe</b>   |  |

## IBM Solution

**IBM Fault Analyzer**

**IBM Debug Tool**

**IBM File Manager**

**Workload Simulator**

**IBM Application Performance Analyzer**

*Reduce 17 Line Items From State of CA Inventory to 5*

1999 ISV charging high prices for System z Software

2000 IBM decided to enter market to put pressure on to lower price

Problem Determination Tools by 2005 had a group of strong enough tools in edit browse, debugging, abend analysis, load/stress testing and application tuning

2009 PD Tools ranked #1 above all others

IBM continues to add functionality others do not have including FREE GUIs

2010 Compuware announces they might not be able to keep up with middle ware currency.

2014 IBM PD Tools are on V13 and are in over 2300 shops worldwide

# IBM Problem Determination (PD) Tools V13



[File Manager for z/OS](#) Data management tool supporting key file structures like VSAM, DB2, CICS, and IMS

[Fault Analyzer for z/OS](#) Helps you rapidly pinpoint cause of failed application (program abend)

[Debug Tool for z/OS](#) Source code debugging to improve development productivity

[Application Performance Analyzer](#) Application tuning live or historical

[Workload Simulator for z/OS and OS/390](#) Regression and Load testing of interactive z/OS applications

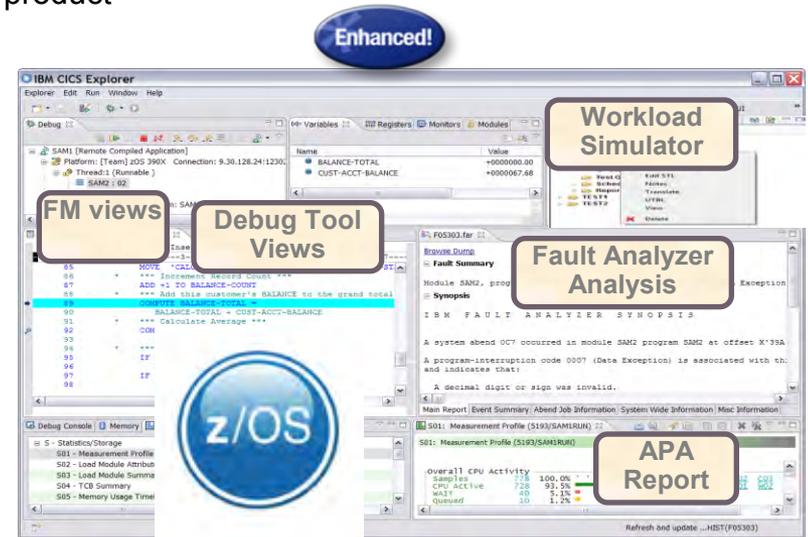
## Others:

[Hour Glass](#) Date time manipulation

[Data Set Commander](#) Less key strokes for ISPF and boosts performance on common PDS functions (replace CA PDSMan)

[Migration Utility](#) convert EZT code to COBOL or just replace CA's EZT product

- **Key focus on Optimization and Modernization**
- Decrease **TCO with competitive pricing**
- Decrease IT costs by **reducing overall application development time** by quickly discovering/resolving performance bottlenecks
- Latest support for **subsystems and languages!**
- Improves application reliability and **user diagnosis capabilities** - assists with fixing application logic
- Improves user ability to regulate and monitor application development activities while **simplifying quality process** and policy validation



Enhanced functional application performance analysis, code quality, and problem identification **with** Problem Determination Tools (PDT) V13

## What's new:

- ▶ Significant improvements to Debug Tool, Fault Analyzer, File Manager, Application Performance Analyzer, Workload Simulator, HourGlass, and Data Set Commander
- ▶ Support for z/OS V2.1, DB2 V11., IMS V13, CICS TS 5.1, WASz 8.5, MQ 7.5, COBOL V5.1, Enterprise PLI V4.4, C/C++ for z/OS V2.1, Java V7, and RD/z V9.0
- ▶ Java enhancements for APA, DT and FA allowing PD Tools to work in a "mixed mode" environments

## Tools and Solution Packs

|             | License    | S&S     |                              |
|-------------|------------|---------|------------------------------|
| Family      | Product ID | ID      | Title                        |
| PD Tools    | 5655Q11    | 5697G59 | Fault Analyzer V13           |
| PD Tools    | 5655Q12    | 5697G60 | File Manager V13             |
| PD Tools    | 5655Q10    | 5655J19 | Debug Tool V13               |
| PD Tools    | 5655Q09    | 5697N38 | App Performance Analyzer V13 |
| PD Tools    | 5655I39    | 5655J09 | IBM Wrkload Sim z/OS OS/390  |
| ICING Tools | 5655U59    | 5697P30 | IBM HourGlass V7             |
| ICING Tools | 5635ISP    | 5698S89 | Data Set Commander V8        |
| PD Tools    | 5655DTS    | 5655TSS | Problem Det Test Sol Pk z/OS |
| PD Tools    | 5655PDS    | 5655PSS | Problem Det Solution Pk      |



### IBM Problem Determination Solution Pack for z/OS V1.1

**Cost effective problem analysis for z/OS sub-systems and languages with both GUI & 3270 interface** with File Manager for z/OS, Fault Analyzer for z/OS, Debug Tool for z/OS, Workload Simulator for z/OS and OS/390, Hour Glass, Data Set Commander

### IBM Problem Determination Testing Solution Pack for z/OS V1.1

**Reduce testing time, improve application reliability and user diagnosis capabilities, and improving user's ability to regulate and monitor testing activities** with Debug Tool for z/OS , Workload Simulator for z/OS and OS/390, Hour Glass

**Upgrade from standalone products using trade-ups**

- Price & Flexible Licensing= *Savings*
- **FREE GUI's for File Manager, Debug, Fault Analyzer and Application Performance Analyzer**
- Single product vs. cost options (DB2, IMS, CICS, MVS, Assembler, COBOL, PL1, etc)
- SMPE install, No passwords / authorization keys
- Function rich compared to ISVs
  - Compliments WebSphere, MQ, Delivery with 64-bit z/Arch
  - Performance ready for heavy workloads especially CICS / DB2
  - **Tools integrate with other PD tools and expanding to other IBM zTools, i.e.: RDz, APA with CICS Performance Analyzer, Omegamon CICS**
- Immediately tolerates new platforms DB2 IMS , CICS z/OS, MQ, etc
- Within 90 days or less typically Exploits new platforms
- Continued expansion of investment in tools: Lab, sales, technical support, trainers
- 2300 customer world wide , Fortune 500 references
- Training options to fit each customer Lecture, lab based hands on live, webcast, self-based CD
- IBM = Reliability = Stability
- Partnership/Responsibility
- Analyst rank IBM PD Tools #1 in PDT Space (see Analyst Report)

# *FUD Factor – Typical Push Back*

The effort should take only a few days, however it is typically spread out over approximately one to two weeks for installation, customization and conversion in preparation for release to end-users. IBM is available to assist.

- **Fault Analyzer, Debug Tool, Application Performance Analyzer**
  - No migration, just install and run
  - IBM and ISV Tools can run in parallel during transition
  - No JCL changes or IPL are required.
  
- **Situational Migration Effort:**
  - **File-AID batch to File Manager/DFSORT**
    - How many? Run free assessment utility – IBM converts
    - Conversion typically reduces batch cycle run time

## TRAINING OPTIONS

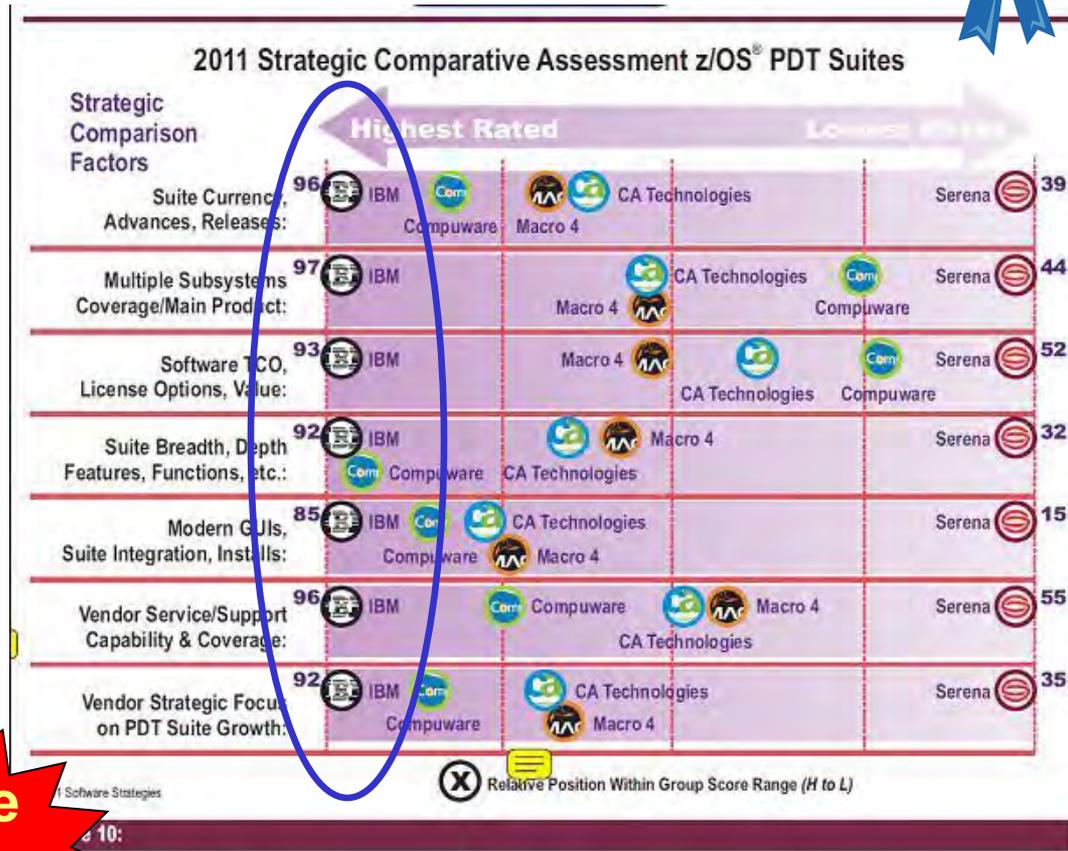
- **Style:**
  - Mentor workshop (lecture and live on system)
  - Webcast – customized areas on each tool up to 50 attendees per session
  - FREE - CD / download self paced (free) Fault, File, DT, APA
- **How:**
  - Train each and every end user
  - Train the trainer (they then take material and continue to train the masses)
  - Train key unit end users (top 2-3 end users from each business area are trained in depth and go back to team to facilitate others)
  - Self paced using CD download



# IBM Problem Determination Tools Wins Top Spot Software Strategies Analyst Report, 2011

## IBM's PD Tools Suite Extends Technology Lead:

- IBM successfully challenged existing vendors in this segment since 2000
- Modern, well-featured, fully integrated, inclusive, and good-value
- The latest suite (V13) has now extended clear technology, feature and functional leadership
- **Two reports Available**



# Replacement of



**Why would I continue to invest our company funds and risk our mainframe?**

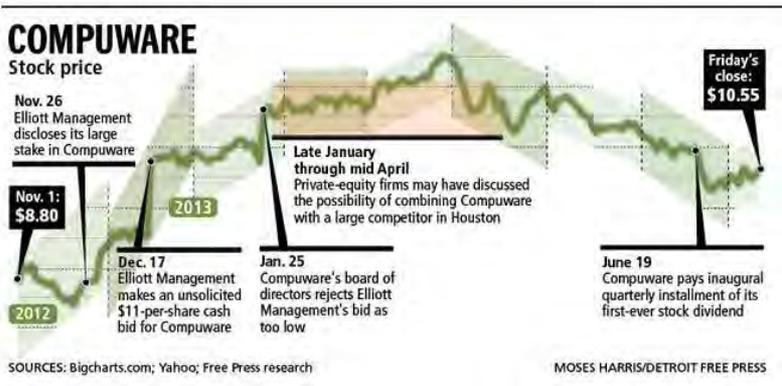
Originally Published: April 05, 2013 1:38 PM Modified: April 05, 2013 2:47 PM  
**Compuware investor writes second critical letter to board**  
By Tom Henderson

<http://www.craigslist.com/article/20130405/NEWS/130409910/compuware-investor-writes-second-critical-letter-to-board>



TECHNOLOGY  
**Compuware Warns of Delayed Deals**  
By DEBBIE CAI  
April 5, 2013 6:49 a.m. ET  
Compuware Corp. said it will miss its expectations for the fiscal year and latest quarter as many clients couldn't complete budgets and postponed deals into the new fiscal year.

<http://online.wsj.com/news/articles/SB10001424127887323646604578401110899012072?mg=en&en=64-wsj&url=http%3A%2F%2Fonline.wsj.com%2Farticle%2FSB10001424127887323646604578401110899012072.html>



## Compuware vulnerable again as standstill agreement expires

<http://www.freep.com/article/20130714/BUSINESS06/307140049/Compuware-Elliott-Management-July-15>

**f Recommend** 6 people recommend this. Sign Up to see what your friends recommend.

## Agenda

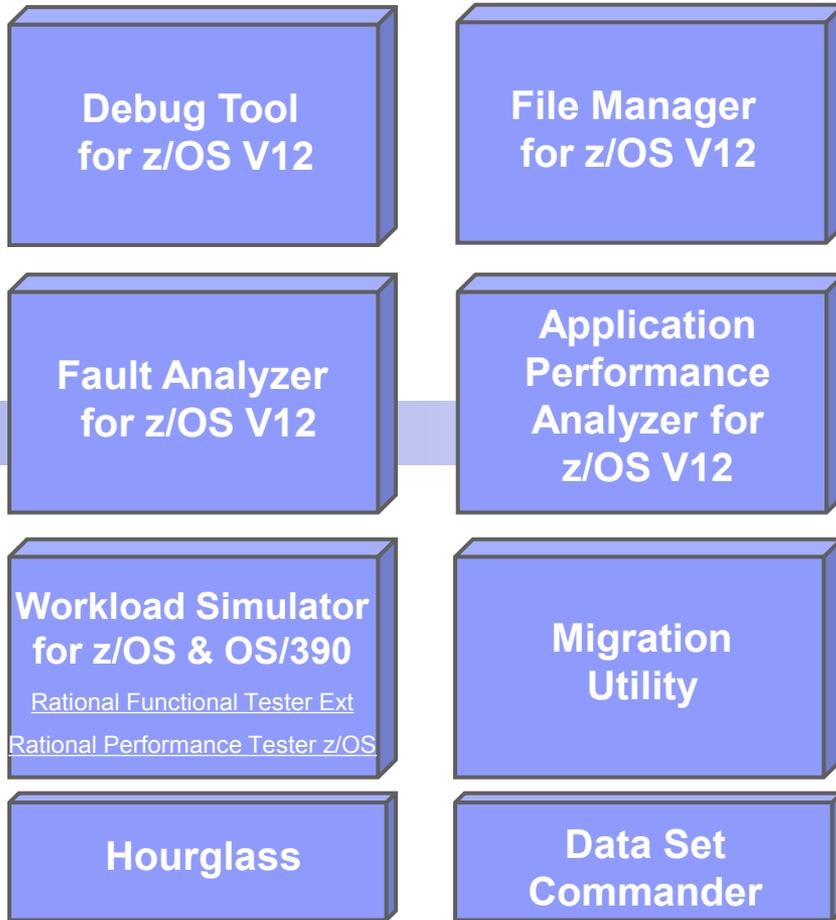
- High Level Technical Review – GUIs - Direction
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# *High Level Technical Overview*

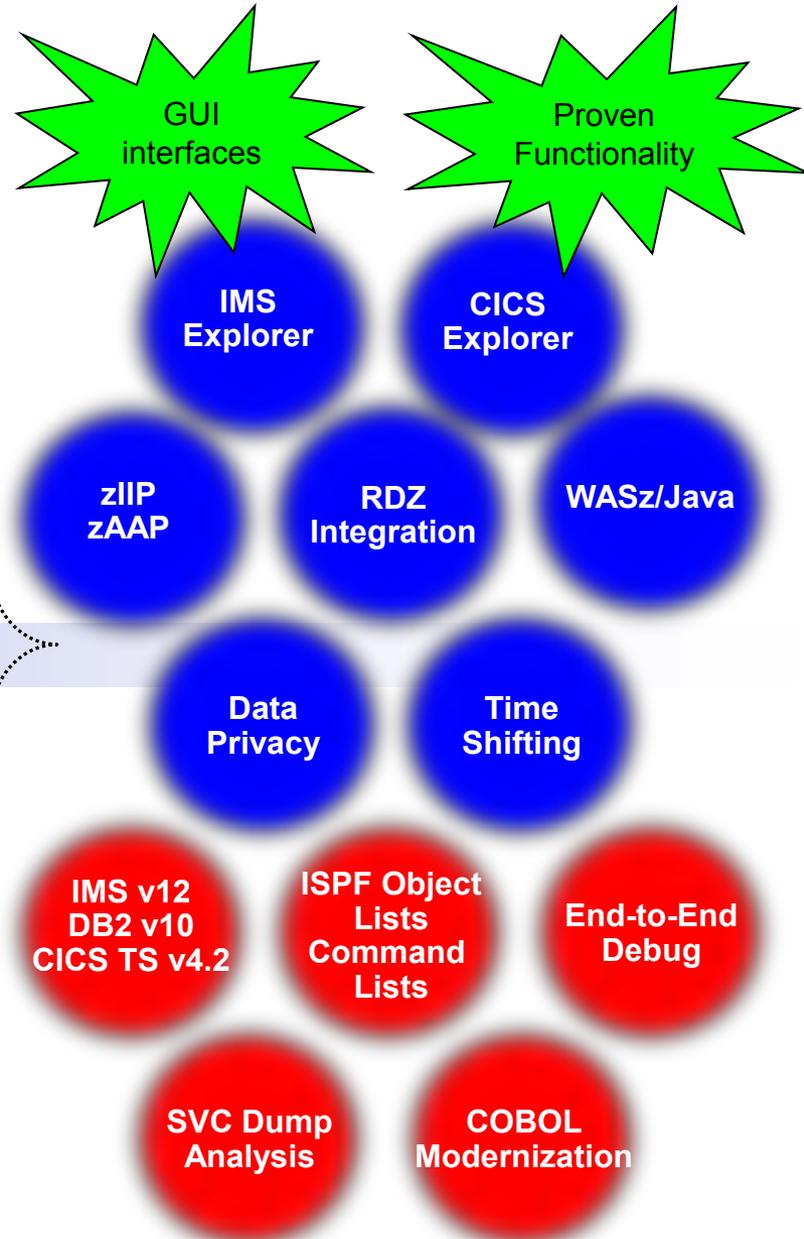
Best of breed application development tooling

## IBM Problem Determination Tools

### IBM 2013 Offerings



[www.ibm.com/software/awdtools/deployment](http://www.ibm.com/software/awdtools/deployment)



# IBM Problem Determination Tools Products

## Products

### **Application Performance Analyzer for z/OS**

A non-intrusive application performance analyzer that aids developers in the design, development and maintenance cycles.

### **Debug Tool for z/OS**

IBM Debug Tool for z/OS helps examine, monitor, and control the execution of application programs.

### **Fault Analyzer for z/OS**

Helps developers analyze and fix application and system failures. Fault Analyzer gathers information about an application and the surrounding environment.

### **File Manager for z/OS**

Provides comprehensive, user-friendly tools for working with z/OS data sets, DB2®, CICS® or IMS™ data, or MQ queues. These tools include the familiar browse, edit and copy.

### **Workload Simulator for z/OS and OS/390**

Enables you to conduct stress, performance, regression, function and capacity planning tests, while eliminating the need for large amounts of terminal hardware.

### **Problem Determination Tools Studio and Plug-ins**

Provides easy access through a graphical user interface (GUI) to the z/OS Problem Determination Tools.

### **Problem Determination Solution Pack**

Convenient package to help address your problem analysis needs.

### **Problem Determination Testing Solution Pack**

Convenient package to help address your testing needs.

### **Data Set Commander for z/OS**

Extends interactive and batch capabilities for performing operations on partitioned data sets and their members.

### **Hourglass**

Allows sites to alter the Date/Time returned to a z/OS application when a time request is made (SVC 11 or PC Time Requests).

### **Migration Utility for z/OS**

Generates IBM COBOL applications from programs written in the CA Easytrieve® languages.

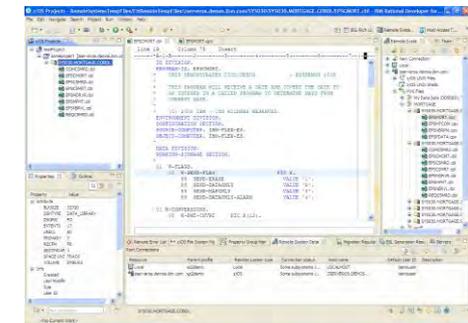
# Improve developer productivity with modern interfaces

## New Stand-alone GUI interfaces

- A user interface's design affects the amount of **effort** needed to **provide** input and **interpret** output from a system, and the **effort** required to **learn** how.
- Use common Eclipse-based tooling across multiple platforms and languages
  - Achieve ~15% improvement in mainframe developer productivity<sup>1</sup>
  - Reduce host CPU usage 50%-80%<sup>1</sup> with workstation syntax checking
  - Reduce training costs, more attractive IDE for younger developers



✓ Produce code faster, save MIPS



- Speed development with specialized editors

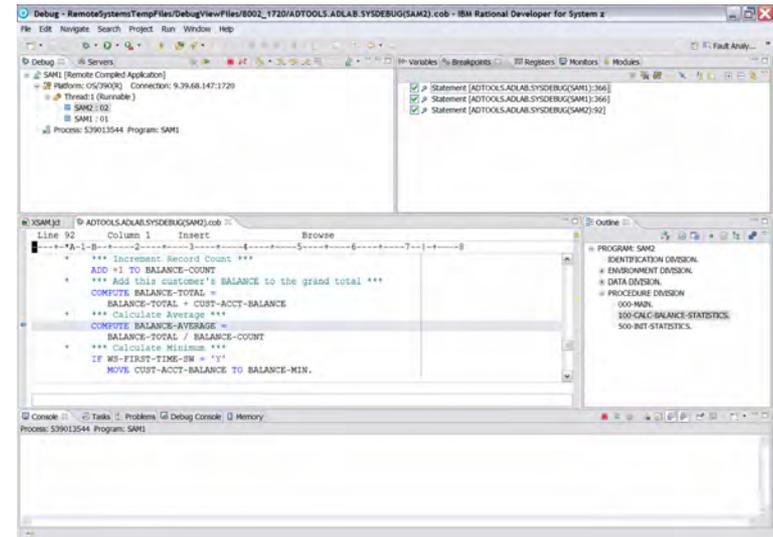
1. Aggregation of results from a productivity study conducted by IBM mainframe customers

## IBM Debug Tool Version 12 Highlights

- **IBM Debug Tool** can help you increase debugging efficiencies and reduce application development cycle times.
- Program testing and analysis aid that helps you examine, monitor, and control the execution of application programs on z/OS (CICS/DB2/IMS/COBOL/PLI/ASM,C/C++/ASM/JAVA w Toolkit)
- Code Coverage Facilities
- Proven 3270-based interface
- Eclipse based GUI
- Support for RD/z

```

COBOL   LOCATION: SAM1 :> 315.1
Command ==> |
MONITOR  +-----1-----2-----3-----4-----5-----6- LINE: 1 OF 5
          +-----1-----2-----3-----4-----
0001  1 BALANCE-COUNT          +0000006.00
0002  2 NUM-DETAIL-LINES      +000000005
0003  3 ***** AUTOMONITOR *****
0004  02 CUST-NAME             'Parker, Ford'
0005  02 RPT-CUST-NAME        'Deeds, Darren'
***** BOTTOM OF MONITOR *****
SOURCE:  SAM1 +-----1-----2-----3-----4-----5- LINE: 312 OF 467
312          CALL 'SAM2' USING CUST-REC,
313          CUSTOMER-BALANCE-STATS
314          MOVE CUST-ID       TO RPT-CUST-ID
315          MOVE CUST-NAME     TO RPT-CUST-NAME
316          MOVE CUST-OCCUPATION TO RPT-CUST-OCCUPATION
317          MOVE CUST-ACCT-BALANCE TO RPT-CUST-ACCT-BALANCE
LOG 0-----1-----2-----3-----4-----5----- LINE: 23 OF 26
0023  GO ;
0024  STEP ;
0025  STEP ;
0026  GO ;
PF 1: ?      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
  
```



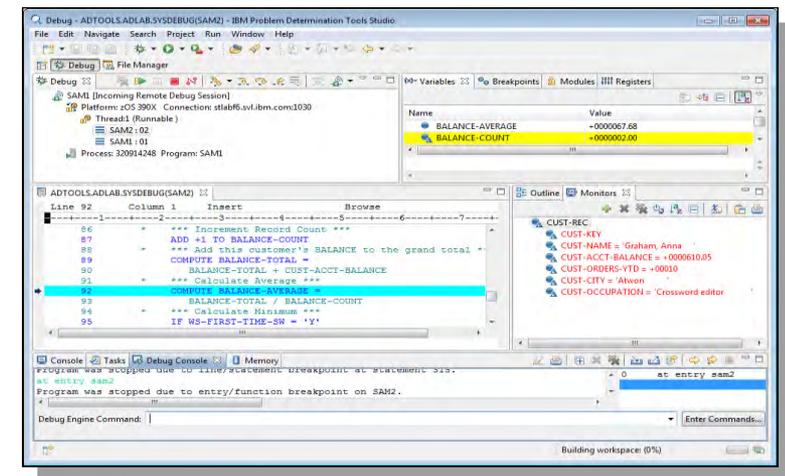
# IBM Debug Tool Version 12

## What's New?

- Delay Debug. Start at a subprogram boundary.
- User Exits consolidated into one. (e.g. EQADBCXT, EQADDCXT, and EQADICXT are merged into a single one: EQAD3CXT)
- DTCN enhancement prevents a non-owner from deleting a profile.
- Storage overhead is reduced, and performance of the automonitor is improved when you debug a program with large structures
- Support for the IBM Explorer for z/OS component in CICS Explorer V1.1.1 and IMS Enterprise Suite Explorer V2.1.2.
- Prevent duplicate entries in Monitor table
- Prevent display of local variables outside of a valid scope.
- Code Coverage

```

COBOL  PBK<LOC:  ADSTAT  :> 55.1
Command ==> |
MONITOR +-----1-----2-----3-----4-----5-----6- LINE: 1 OF 7
+-----1-----2-----3-----4-----
0001  1 SUB-A                      +0000000005
0002  2 ACCUM-A                    +0394
0003  4 ***** AUTOMONITOR *****
0004  02 ACCUM-A                    +0394
0005  02 NUM ( SUB-A )
0006  SUB(5)                        +0000000115
SOURCE: ADSTAT ---1-----2-----3-----4-----5----- LINE: 53 OF 95
53      PERFORM VARYING SUB-A FROM 1 BY 1
54          UNTIL SUB-A > ARRAY-SIZE
55          COMPUTE ACCUM-A = ACCUM-A + NUM(SUB-A)
56      END-PERFORM.
57      MOVE ACCUM-A TO RESULT-SUM.
58      COMPUTE RESULT-AVERAGE = ACCUM-A / ARRAY-SIZE.
LOG 0-----1-----2-----3-----4-----5----- LINE: 42 OF 45
0042  STEP 9 ;
0043  PLAYBACK START ;
0044  STEP ;
0045  STEP ;
PF 1: ?      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
  
```



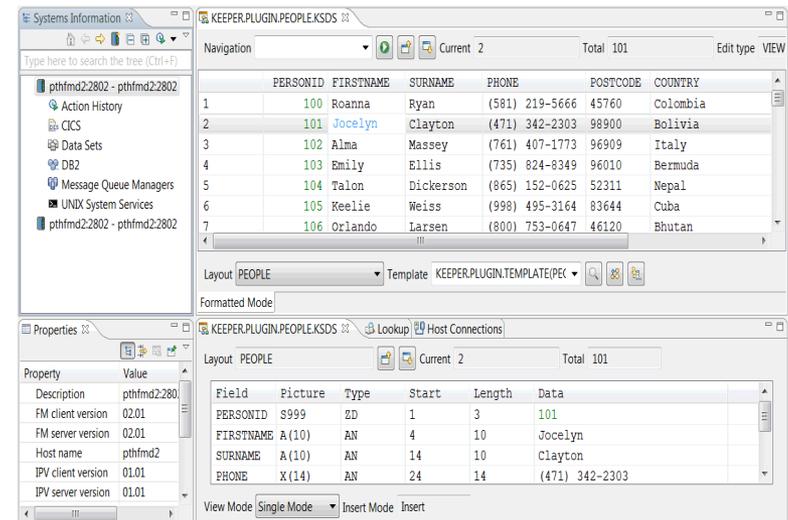
## IBM File Manager Version 12 Highlights

- **IBM File Manager** allows you to manage production, test, and development data across multiple formats and storage media
- Create, edit, copy, browse, extract, print, and compare enterprise data (VSAM/DB2/IMS,CICS/MQ)
- Edit entire files regardless of size
- Scramble sensitive data to insure data privacy across all environments
- Proven 3270-based interface and free graphical user interface

```

Process  Options  Help
-----
Edit      FI:TSS12CUS DS:TSS12.ADLAB.CUS +          Rec 3
Command ==> |                               Scroll CSR
Key 02202   Type KSDS                                Format SNGL
                                           Top Line is 1 of 15
                                           Length 331

Current 01: CUST-REC
Ref Field Picture Typ Start Len Data
2 2 CUSTOMER-KEY
      AN      1    5
3 3 CUST-ID
      X(5)    AN      1    5 02202
4 2 NAME X(17) AN      6   17 Major, Art
5 2 ACCT-BALANCE
      S9(7)V99 PD    23    5      1234.56
6 2 ORDERS-YTD
      S9(4)    BI    28    2      5
7 2 ADDR X(20) AN    30   20 1512 Pine Bluff
8 2 CITY X(14) AN    50   14 Harmon
9 2 STATE
      X(02)   AN     64    2 MN
12 2 OCCUPATION
      X(30)   AN   137   30 College student
*** End of record ***
  
```



The screenshot displays the IBM File Manager graphical user interface. The main window shows a table of data for 'KEEPER.PLUGIN.PEOPLE.KSDS'. The table has columns for PERSONID, FIRSTNAME, SURNAME, PHONE, POSTCODE, and COUNTRY. The data is as follows:

| PERSONID | FIRSTNAME | SURNAME   | PHONE          | POSTCODE | COUNTRY  |
|----------|-----------|-----------|----------------|----------|----------|
| 100      | Roanna    | Ryan      | (581) 219-5666 | 45760    | Colombia |
| 101      | Jocelyn   | Clayton   | (471) 342-2303 | 98900    | Bolivia  |
| 102      | Alma      | Massey    | (761) 407-1773 | 96909    | Italy    |
| 103      | Emily     | Ellis     | (735) 824-8349 | 96010    | Bermuda  |
| 104      | Talon     | Dickerson | (865) 152-0625 | 52311    | Nepal    |
| 105      | Keelie    | Weiss     | (998) 495-3164 | 83644    | Cuba     |
| 106      | Orlando   | Larsen    | (800) 753-0647 | 46120    | Bhutan   |

Below the table, there is a 'Formatted Mode' section showing a detailed view of the first record (PERSONID 101):

| Field     | Picture | Type | Start | Length | Data           |
|-----------|---------|------|-------|--------|----------------|
| PERSONID  | S999    | 2D   | 1     | 3      | 101            |
| FIRSTNAME | A(10)   | AN   | 4     | 10     | Jocelyn        |
| SURNAME   | A(10)   | AN   | 14    | 10     | Clayton        |
| PHONE     | X(14)   | AN   | 24    | 14     | (471) 342-2303 |

On the left side, there is a 'Systems Information' panel showing a tree view of the system structure, including 'pthfmd2:2802' and its sub-components like 'Action History', 'CICS', 'Data Sets', 'DB2', 'Message Queue Managers', and 'UNIX System Services'. A 'Properties' panel at the bottom left shows system details such as 'Description: pthfmd2:2802', 'FM client version: 02.01', 'Host name: pthfmd2', etc.

# IBM File Manager Version 12

## What's New?

### ■ Plug-in enhancements include:

- Support for the IBM Explorer for z/OS component in CICS Explorer V1.1.1 and IMS Enterprise Suite Explorer V2.1.2
- Support for manipulating data stored in z/OS data sets , UNIX System Services files, WebSphere MQ queues, CICS files, TD queues, TS queues, and DB2 databases
- Template editor enhancements for field-mapping support and easier invocation from dialogs and wizards

### ■ File Manager Base is enhanced with:

- Formatted KSDS key
- Picture support for edit and find/change command
- WebSphere MQ 7.1 toleration

### ■ File Manager DB2 enhancements include:

- The SQL SELECT Statement Advanced Prototyper now supports DB2 V10 syntax
- The Object List utility shows columns added in DB2 V10

### ■ File Manager IMS is enhanced to support IMS V12

Process Options Help

Edit FI:TSS12CUS DS:TSS12.ADLAB.CUS + Rec 3

Command ==> | Scroll CSR

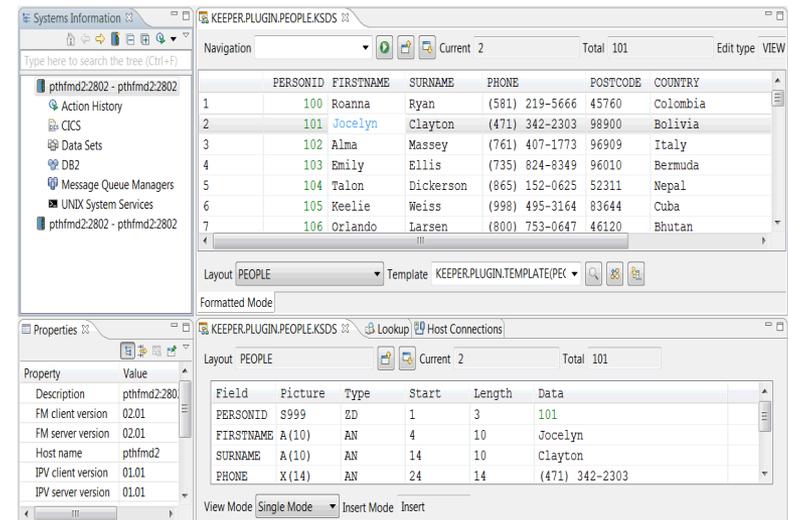
Key 02202 Type KSDS Format SNGL

Top Line is 1 of 15 Length 331

Current 01: CUST-REC

| Ref | Field | Picture      | Typ | Start | Len | Data            |
|-----|-------|--------------|-----|-------|-----|-----------------|
| 2   | 2     | CUSTOMER-KEY | AN  | 1     | 5   |                 |
| 3   | 3     | CUST-ID      | AN  | 1     | 5   |                 |
|     |       | X(5)         |     |       |     |                 |
| 4   | 2     | NAME X(17)   | AN  | 6     | 17  | Major, Art      |
| 5   | 2     | ACCT-BALANCE |     |       |     |                 |
|     |       | S9(7)V99 PD  |     | 23    | 5   | 1234.56         |
| 6   | 2     | ORDERS-YTD   |     |       |     |                 |
|     |       | S9(4)        |     | 28    | 2   | 5               |
| 7   | 2     | ADDR X(20)   | AN  | 30    | 20  | 1512 Pine Bluff |
| 8   | 2     | CITY X(14)   | AN  | 50    | 14  | Harmon          |
| 9   | 2     | STATE        |     |       |     |                 |
|     |       | X(02)        |     | 64    | 2   | MN              |
| 12  | 2     | OCCUPATION   |     |       |     |                 |
|     |       | X(30)        |     | 137   | 30  | College student |

\*\*\* End of record \*\*\*



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|----------|-----------|-----------|----------------|----------|----------|
| 1        | Roanna    | Ryan      | (581) 219-5666 | 45760    | Colombia |
| 2        | Jocelyn   | Clayton   | (471) 342-2303 | 98900    | Bolivia  |
| 3        | Alma      | Massey    | (761) 407-1773 | 96909    | Italy    |
| 4        | Emily     | Ellis     | (735) 824-8349 | 96010    | Bermuda  |
| 5        | Talon     | Dickerson | (865) 152-0625 | 52311    | Nepal    |
| 6        | Keelie    | Weiss     | (998) 495-3164 | 83644    | Cuba     |
| 7        | Orlando   | Larsen    | (800) 753-0647 | 46120    | Bhutan   |

The Properties window shows the following details for the selected record:

| Property           | Value       |
|--------------------|-------------|
| Description        | pthfmd22802 |
| FM client version  | 02.01       |
| FM server version  | 02.01       |
| Host name          | pthfmd2     |
| IPV client version | 01.01       |
| IPV server version | 01.01       |

## IBM Fault Analyzer Version 12 Highlights

- **IBM Fault Analyzer** improves developer productivity and decreases deployment costs by helping to analyze and correct application failures quickly (CICS,DB2,IMS,MQ,COBOL,PLI,ASM,C/C++,JAVA)
- Automatic program abend capture and reporting
- Program source-level reporting
- Provides a detailed report about program failures to help resolve them quickly
- Enables you to track and manage application failures and fault reports
- Proven 3270-based Interface and free graphical Interface

```
File View Services Help
Synopsis Line 12 Col 1 80
Command ==> Scroll ==> CSR
JOBNAME: DNET246S SYSTEM ABEND: 0C7 DEMOMVS 2007/10/30 20:00:12
Source
Line #
000088 * *** Add this customer's BALANCE to the grand total ***
000089 COMPUTE BALANCE-TOTAL =
000090 BALANCE-TOTAL + CUST-ACCT-BALANCE

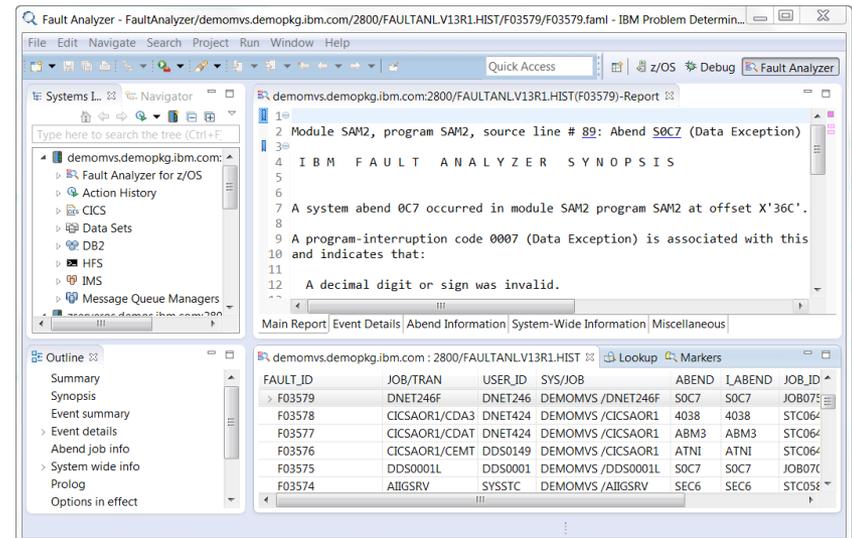
The COBOL source code for data fields involved in the failure:

Source
Line #
000059 05 CUST-ACCT-BALANCE PIC S9(7)V99 COMP-3.
000066 05 BALANCE-TOTAL PIC S9(7)V99 COMP-3.

Data field values at time of abend:

BALANCE-TOTAL = 10948.44
CUST-ACCT-BALANCE = X'7C7B5B6C50' *** Cause of error ***

*** Bottom of data.
```



The screenshot shows the IBM Fault Analyzer interface with a detailed report for a system abend. The report includes a synopsis of the error: "A system abend 0C7 occurred in module SAM2 program SAM2 at offset X'36C'. A program-interruption code 0007 (Data Exception) is associated with this and indicates that: A decimal digit or sign was invalid."

| FAULT_ID | JOB/TRAN      | USER/JOB | ABEND             | L_ABEND | JOB_ID |
|----------|---------------|----------|-------------------|---------|--------|
| F03579   | DNET246F      | DNET246  | DEMOMVS /DNET246F | S0C7    | S0C7   |
| F03578   | CICSAOR1/CDA3 | DNET424  | DEMOMVS /CICSAOR1 | 4038    | 4038   |
| F03577   | CICSAOR1/CDAT | DNET424  | DEMOMVS /CICSAOR1 | ABM3    | ABM3   |
| F03576   | CICSAOR1/CEMT | DDS0149  | DEMOMVS /CICSAOR1 | ATNI    | ATNI   |
| F03575   | DDS0001L      | DDS0001  | DEMOMVS /DDS0001L | S0C7    | S0C7   |
| F03574   | AIIGSRV       | SYSSTC   | DEMOMVS /AIIGSRV  | SEC6    | SEC6   |

# IBM Fault Analyzer Version 12

## What's New?

- **Plug-in enhancements include:**
  - Support for the IBM Explorer for z/OS component in CICS Explorer V1.1.1 and IMS Enterprise Suite Explorer V2.1.2
  
- **Java enhancements:**
  - Java information displays instance variable data.
  - Java information is displayed from SVC or SDUMP analysis.
  
- **Usability enhancements:**
  - Point-and-shoot-enabled abend codes are added to Fault Entry list display.
  - Improved options display from Fault Analyzer-supplied CICS transaction.
  - Expand/collapse function added to COBOL level 88 items.

```

File View Services Help

Synopsis
Command ==> |
JOBNAME: DNET246S  SYSTEM ABEND: 0C7          DEMOMVS   2007/10/30  20:00:12
Source
Line #
000088      *   *** Add this customer's BALANCE to the grand total ***
000089      COMPUTE BALANCE-TOTAL =
000090      BALANCE-TOTAL + CUST-ACCT-BALANCE

The COBOL source code for data fields involved in the failure:

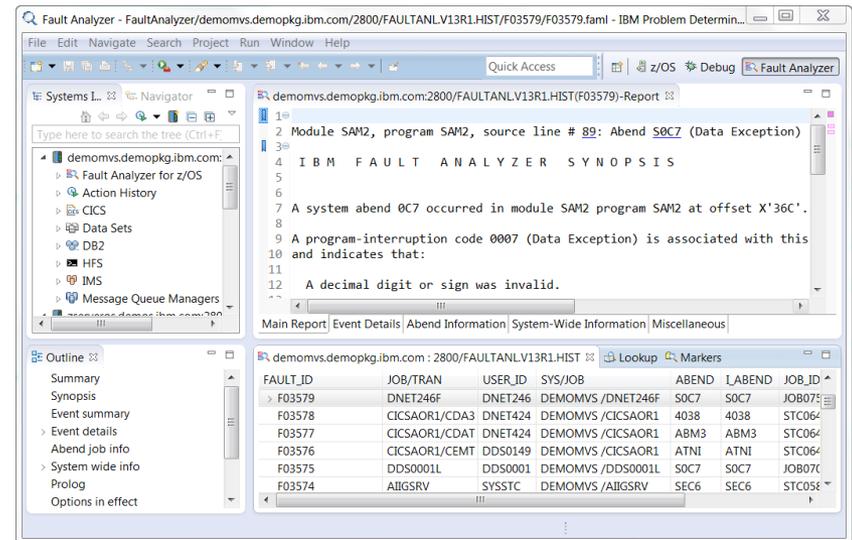
Source
Line #
000059      05  CUST-ACCT-BALANCE      PIC S9(7)V99  COMP-3.
000066      05  BALANCE-TOTAL           PIC S9(7)V99  COMP-3.

Data field values at time of abend:

BALANCE-TOTAL      = 10948.44
CUST-ACCT-BALANCE = X'7C7B5B6C50'  *** Cause of error ***

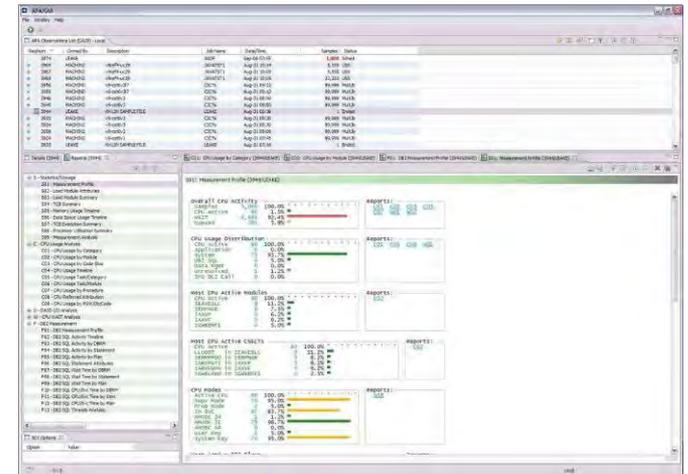
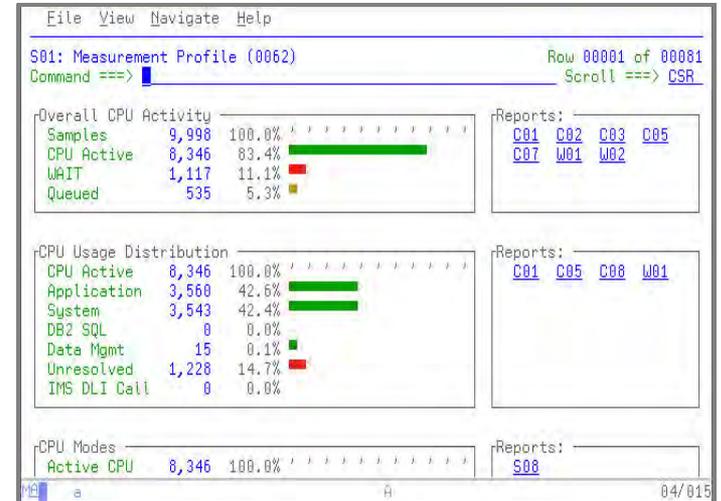
*** Bottom of data.

```



# IBM Application Performance Analyzer Version 12 Highlights

- IBM Application Performance Analyzer** helps maximize the performance of your applications and improve the response time of your online applications and batch turnaround
- Identify constraints and improve the entire application's performance no matter where the problem resides (CICS,IMS,DB2,MQ,COBOL,PLI,ASM,JAVA)
- Displays overall system activity, enabling you to check job execution online and select which active job to monitor
- Automatically starts to monitor job performance when the job or program becomes active
- Provides multiple summary reports to assist in identifying key areas of performance bottlenecks
- Proven 3270-based Interface and free graphical Interface



# IBM Application Performance Analyzer Version 12

## What's New?

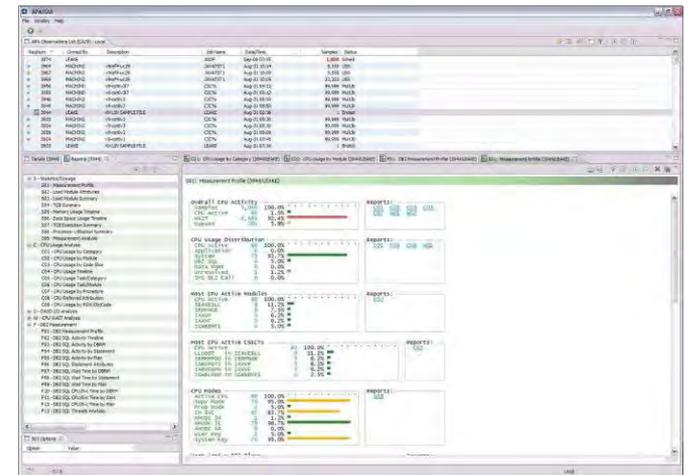
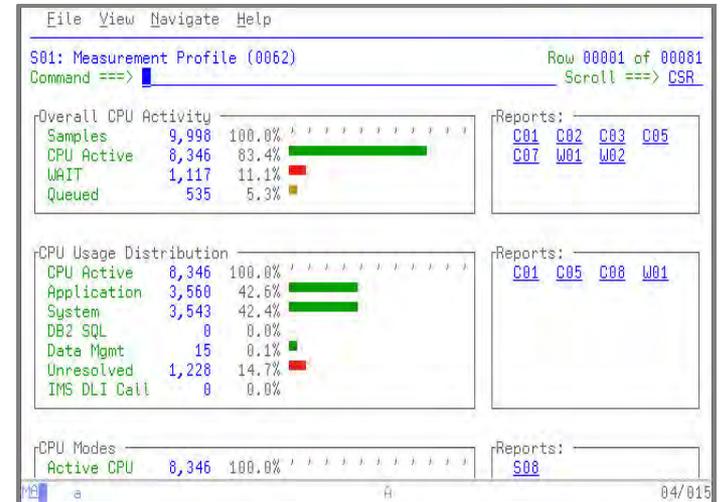
### ■ Sampling enhancements:

- Improved accuracy of CICS and DASD reports
- Improvements to the DB2+ and IMS+ data extractors
- Reduced memory requirement
- New SMF Record exit captures WebSphere activity and DB2 accounting data
- Support for CICS TS 4.2, including running a single JVM, Java 6.0.1, and IMS 12

### ■ Enhancements to the ISPF observation list

### ■ Enhancements to the NEW command:

- New WAS data extractor for measuring activity processed by a selected WebSphere controller address space
- New WebSphere selection criterion based on request, application, or origin
- New WebSphere selection criterion to filter out image files and specific file extensions

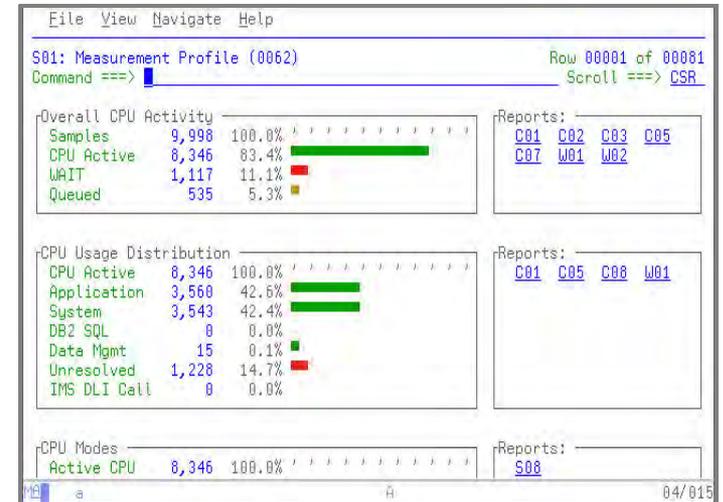


# IBM Application Performance Analyzer Version 12

What's New cont'd...

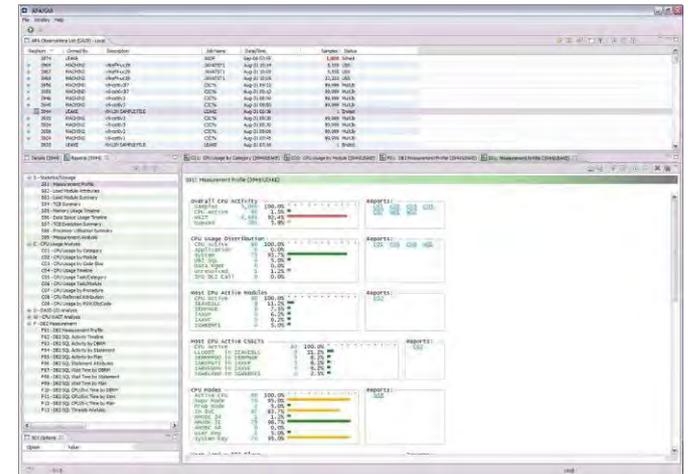
## ■ Reporting enhancements:

- Display formatted SQL in DB2 report detail windows.
- Display SQL function for Remote SQL in DB2 reports.
- Display IMS subsystem and trancode, program, or user in S01 report and R02 detail window.
- Add DB2 Class 3 Wait report.
- Add option in S03 to combine duplicate modules.
- Disable expansion of very large wait reports.
- Support new COBOL SYSDEBUG interface.
- Add WebSphere activity reports.
- Expanded recommendations in S09 report



## ■ GUI plug-in enhancements:

- Support for the IBM Explorer for z/OS component in CICS Explorer V1.1.1 and IMS Enterprise Suite Explorer V2.1.2
- Additional preferences to match those available in ISPF
- Support for mixed case password and password phrases
- Support for SSL
- Changes to the observation list display
- Sticky notes added in observations and individual reports
- Email a report
- Save/browse current view of report as HTML
- DB2 SQL extract (for input to DB2 or Visual Explain)
- Support for sample file import/export
- Produce PDF and XML reports on users' workstations
- Support for access to source stored in 3rd-party repositories

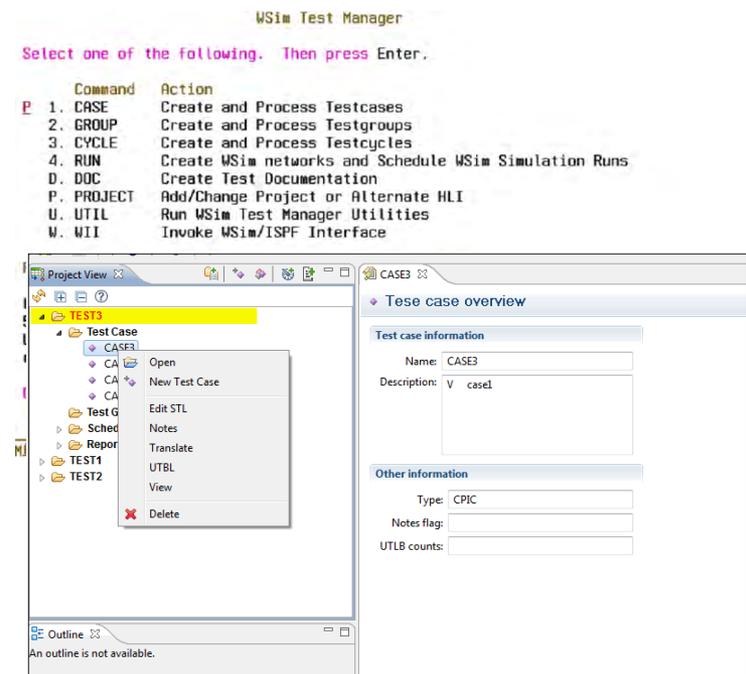


## IBM Workload Simulator

- **IBM Workload Simulator** helps eliminate the need for large amounts of terminal hardware and terminal operator time for testing
- Ideal for stress, performance, regression, function and capacity planning testing
- Proven 3270-based Interface and new free graphical user Interface

### What's New?

- Graphical user interface to help you manage testing scripts and testing buckets



IBM® Workload Simulator for z/OS® and OS/390® can simulate a network of terminals and its associated messages. This solution for stress, performance, regression, function and capacity planning testing eliminates the need for large amounts of terminal hardware and operator time by providing a powerful analysis with log list, log compare and response time utilities.

- Provides support for SNA, CPI-C (LU 6.2), TCP/IP, [Telnet 3270](#), 3270E and 5250 clients, Telnet line mode network virtual terminal clients, simple TCP and UDP clients, FTP clients and multiple client applications that run on top of TCP/IP.

# *What has occurred at the State of CA*

## State of California Sessions Completed

- **6 STEP aka POC sessions conducted**

- OTEC / Support Staff
  - ☐ 8-10 February 2011
- Department of Motor Vehicles / DMV I
  - ☐ 20-22 April 2011
- State Controller's Office / SCO
  - ☐ 26-28 April 2011
- Department of Motor Vehicles / DMV II
  - ☐ 1-3 June 2011
- SYS1 Vacaville
  - ☐ 10-12 August 2011
- SYS2 Vacaville
  - ☐ 5-7 October 2011

- **73 Staff Trained**

- **5 Issues surfaced – All were resolved**

- 1 Issue resulted in a new option to Application Performance Analyzer to satisfy a State requirement

## Overview – Sampling of Comments from State of CA

### ■ **Debug Tool**

- *“There are nice short cuts which makes this a “lazyman’s” tool”*
- *“The EQUATES is pretty slick”*
- *“I use Compuware Xpediter and this compares well. It’s easy. It’s easier to set up than ASG SmartTest too”*
- *“The setup is easy”*

### ■ **Fault Analyzer**

- *“The online interface with the column configuration is a helpful way to filter abends”*
- *“Point and shoot capabilities are a nice feature”*

### ■ **Application Performance Analyzer**

- *“Customers commented that APA is a great tool for CICS applications”*

### ■ **File Manager**

- *“The InPlace Edit option sounds handy. Nice that it happens behind the scenes and we do not have to do anything”*
- *“I like how the array’s are displayed”*

# *Training and Migrations Other Customer Examples*

## Ford Motor Company

- Project Dates: Began January 2011 - Ended March 2012
- Training
  - Delivered 56 days of onsite training
  - Delivered 32 days of web conferences
  - Training delivered to:
    - United States (Michigan and California)
    - United Kingdom
    - Germany
    - India
- File Manager Batch Migration
  - Jobs found with File-AID 10,418
  - Total number of File-AID steps for migration 29,487 steps
  - Batch migration started in Jan 2011, last jobs were migrated in Jan 2012
- Notes:
  - Ford organized migration by group/operating company (i.e. FMC, Mazda etc)
  - Packages for migration delivered throughout the year
    - Allowed Ford to schedule/manage testing
    - Allowed Ford to schedule replacement of production



## State of Oregon

- Project Dates: Began March 2010 - Ended June 2010
- Training
  - Delivered 22 days of onsite training
  - Training delivered in Salem
- File Manager Batch Migration
  - State had made an effort to remove all ISV processing from scheduled production JCL
  - Assessment Tool showed 2 jobs in productions requiring conversion
- Notes:
  - State did not have a Workload Simulator Migration



## State of Illinois

- Project Dates: Began February 2012 - Ended June 2012
- Training
  - Delivered 21 days of onsite training
  - Training delivered to:
    - Springfield
    - Chicago
- File Manager Batch Migration
  - State limits the uses of ISV applications in production JCL
  - Less than 50 jobs with less than 100 steps converted
- Notes:
  - State did not have a Workload Simulator Migration
  - Extremely short time frame to meet cut over to new CPU



# *State of California Implementation Plan Installation, Education, Migration*

## IBM PD tools installation status

IBM PD tools installation status (X indicates installation is complete)

| System / LPAR     | Application Perf Analyzer | Debug Tool | Fault Analyzer | File Manager | File Manager DB2 | Workload Simulator |
|-------------------|---------------------------|------------|----------------|--------------|------------------|--------------------|
| Gold Camp Triplex |                           |            |                |              |                  |                    |
| SY4               | X                         | X          | X              | X            | X                | X                  |
| SY5               | X                         | X          | X              | X            | X                | X                  |
| SY6               | X                         | X          | X              | X            | X                | X                  |
| Gold Camp Duplex  |                           |            |                |              |                  |                    |
| SY2               | X                         | X          | X              | X            | X                | X                  |
| SY7               | X                         | X          | X              | X            | X                | X                  |
| Gold Camp SCO     |                           |            |                |              |                  |                    |
| SY3               | X                         | X          | X              | X            | X                | X                  |
| CWS               |                           |            |                |              |                  |                    |
| SOC               |                           | X          |                | X            |                  |                    |
| SOCP              |                           | X          |                | X            |                  |                    |
| SCT1              | X                         | X          |                | X            |                  | X                  |
| SCT2              | X                         | X          |                | X            |                  | X                  |
| Vacaville         |                           |            |                |              |                  |                    |
| S1S1              | X                         | X          | X              | X            | X                | X                  |
| S2S2              | X                         | X          | X              | X            | X                | X                  |
| TEST              | X                         | X          | X              | X            | X                | X                  |

## Training Classes

| Workshop   | On-site hands-on (recommended) |
|--|--------------------------------|
| <p><b>File Manager Base</b> (for z/OS Files)</p> <p><b>File Manager base feature workshops typically have a duration of . . . . .</b><br/> <i>One day workshops include detailed topics for editing and browsing various types of z/OS files, using templates, and using the File Manager utilities interactively and in batch.</i></p> <p><b>If time is limited, the “basic” workshop can be delivered. The duration is. . .</b><br/> <i>The half-day “basic” workshop provides an introduction to the File Manager base feature, describing the basics of how to use the file editor and browser, and an introduction to the copy and print utilities.</i></p> | <p>1 Day</p> <p>½ Day</p>      |
| <p><b>File Manager DB2</b></p>   | <p>½ day</p>                   |
| <p><b>File Manager IMS</b></p>   | <p>½ day</p>                   |
| <p><b>Fault Analyzer</b></p>   | <p>½ day</p>                   |
| <p><b>Application Performance Analyzer</b></p>   | <p>½ day</p>                   |
| <p><b>Workload Simulator</b></p>   | <p>1 day</p>                   |

## Training Classes

| Workshop   | On-site hands-on (recommended) |
|--|--------------------------------|
| <p><b>Debug Tool</b></p> <p><i>A Debug Tool workshop consists of training topics that describe debugging in various languages and environments. The duration of a workshop depends on which topics are covered.</i></p> <p><b>Debug Tool workshops typically have a duration of . . . . .</b></p> <p><i>One day workshops include detailed topics for debugging batch and CICS applications with supported COBOL and PLI compilers, using the 3270 or GUI debugging interface. Debugging IMS/TM, Assembler, and OS/VS COBOL programs is covered if applicable</i></p> <p><b>If time is limited, the “basic” workshop can be delivered for customers running version 10 or later. The duration is . . .</b></p> <p><i>The half-day “basic” workshop provides an introduction to Debug Tool, describing the basics of how to start and use the debugger with batch and CICS programs with Enterprise COBOL or Enterprise PLI compilers, using the 3270 or GUI debugging interface.</i></p> | <p>1 day</p> <p>1/2 day</p>    |

## Current training schedule – Gold Center

### IBM PD tools training schedule

| Date      | Time of day      | Tool                      | Class format | Location                |
|-----------|------------------|---------------------------|--------------|-------------------------|
| 4/8/2014  | 8AM - 12PM PT    | File Manager Basic        | Hands-on     | 10860 Gold Center Drive |
| 4/8/2014  | 1PM - 4:30 PM PT | File Manager Advanced     | Hands-on     | 10860 Gold Center Drive |
| 4/9/2014  | 8AM - 12PM PT    | File Manager DB2          | Hands-on     | 10860 Gold Center Drive |
| 4/9/2014  | 1PM - 4:30 PM PT | Fault Analyzer            | Hands-on     | 10860 Gold Center Drive |
| 4/10/2014 | 8AM - 12PM PT    | Debug Tool Basic          | Hands-on     | 10860 Gold Center Drive |
| 4/10/2014 | 1PM - 4:30 PM PT | Debug Tool Advanced       | Hands-on     | 10860 Gold Center Drive |
| 4/11/2014 | 8AM - 4:30 PM PT | Workload Simulator        | Hands-on     | 10860 Gold Center Drive |
|           |                  |                           |              |                         |
| 4/22/2014 | 8AM - 12PM PT    | File Manager Basic        | Hands-on     | 10860 Gold Center Drive |
| 4/22/2014 | 1PM - 4:30 PM PT | File Manager Advanced     | Hands-on     | 10860 Gold Center Drive |
| 4/23/2014 | 8AM - 12PM PT    | File Manager DB2          | Hands-on     | 10860 Gold Center Drive |
| 4/23/2014 | 1PM - 4:30 PM PT | Application Perf Analyzer | Hands-on     | 10860 Gold Center Drive |
| 4/24/2014 | 8AM - 12PM PT    | Debug Tool Basic          | Hands-on     | 10860 Gold Center Drive |
| 4/24/2014 | 1PM - 4:30 PM PT | Debug Tool Advanced       | Hands-on     | 10860 Gold Center Drive |
| 4/25/2014 | 8AM - 12PM PT    | Fault Analyzer            | Hands-on     | 10860 Gold Center Drive |
| 4/25/2014 | 1PM - 4:30 PM PT | Application Perf Analyzer | Hands-on     | 10860 Gold Center Drive |

## Current training schedule – web conferences

| Date      | Time of day   | Tool                         | Class format | Location |
|-----------|---------------|------------------------------|--------------|----------|
| 4/28/2014 | 8AM - 12PM PT | File Manager Basic           | Hands-on     | Web conf |
| 4/29/2014 | 8AM - 12PM PT | File Manager Advanced        | Hands-on     | Web conf |
| 4/30/2014 | 8AM - 12PM PT | File Manager DB2             | Hands-on     | Web conf |
| 5/1/2014  | 8AM - 12PM PT | Debug Tool Basic             | Hands-on     | Web conf |
| 5/2/2014  | 8AM - 12PM PT | Debug Tool Advanced          | Hands-on     | Web conf |
| 5/5/2014  | 8AM - 12PM PT | Fault Analyzer               | Hands-on     | Web conf |
| 5/6/2014  | 8AM - 12PM PT | Application Perf Analyzer    | Hands-on     | Web conf |
| 5/7/2014  | 8AM - 12PM PT | Workload Simulator (Part I)  | Hands-on     | Web conf |
| 5/8/2014  | 8AM - 12PM PT | Workload Simulator (Part II) | Hands-on     | Web conf |

## Current training schedule - SCO

### IBM PD tools training schedule

| Date      | Time of day      | Tool                  | Class format | Location                   |
|-----------|------------------|-----------------------|--------------|----------------------------|
| 5/13/2014 | 8AM - 12PM PT    | File Manager Basic    | Hands-on     | 300 Capital Mall 2nd floor |
| 5/13/2014 | 1PM - 4:30 PM PT | File Manager Advanced | Hands-on     | 300 Capital Mall 2nd floor |
| 5/14/2014 | 8AM - 12PM PT    | File Manager Basic    | Hands-on     | 300 Capital Mall 2nd floor |
| 5/14/2014 | 1PM - 4:30 PM PT | File Manager Advanced | Hands-on     | 300 Capital Mall 2nd floor |
| 5/15/2014 | 8AM - 12PM PT    | Debug Tool Basic      | Hands-on     | 300 Capital Mall 2nd floor |
| 5/15/2014 | 1PM - 4:30 PM PT | Fault Analyzer        | Hands-on     | 300 Capital Mall 2nd floor |
| 5/16/2014 | 8AM - 4:30 PM PT | Workload Simulator    | Hands-on     | 300 Capital Mall 2nd floor |

## File Manager Batch Migration

- Typical steps in a batch migration include:
  - Organize Migration by Agency(s)
  - Assessment Tool Run
    - Will require access to Production JCL and PROC Libraries
  - Return Codes Resolved
    - Bad Return Code typically indicates a missing member or missing PROC Library
    - Can also uncover 'old' jobs no longer executed/needed
  - Assessment Tool Output FTP to IBM
  - IBM Analyzes and Migrates Batch Jobs
  - IBM Returns File Manager Jobs
  - Testing Conducted on Migrated Jobs
    - 'Apples to Apples'
    - If an issue is found, IBM will correct the job to match output
  - File Manager Jobs added to Production replacing old Batch Jobs

## File-AID/MVS to File Manager Assessment/Migration Process Options

| Options    | Responsible Entities | OTECH Request format   |
|------------|----------------------|--|
| Option # 1 | Customer             | Submit Email request for Assessment and Migration Tool to <a href="mailto:MAPS_UNIT_DG@STATE.CA.GOV">MAPS_UNIT_DG@STATE.CA.GOV</a> |
| Option #2  | Customer and IBM     | Submit Email request for Assessment tool to <a href="mailto:MAPS_UNIT_DG@STATE.CA.GOV">MAPS_UNIT_DG@STATE.CA.GOV</a>               |
| Option #3  | OTECH and IBM        | Submit OTech Remedy Work Order. See attached work order example.   |

## File-AID/MVS to File Manager Assessment/Migration Options Explained

### ■ Conversion Options:

#### 1. Customer is responsible for all migration effort.

- a. Executes the assessment tool to identify the members in datasets that contain File-AID/MVS statements that need to be migrated to File Manager statements,
- b. Runs the migration tool for automated migration of job,
- c. Performs any manual migrations for jobs that the migration tool is unable to convert.
- d. Migrates converted files back into production libraries using client change management process/tools.

**NOTE:** The Assessment and Migration tools (with instructions) will be sent to the Customer upon email request. Send email request for tools to the Products Support Unit, [MAPS\\_UNIT\\_DG@STATE.CA.GOV](mailto:MAPS_UNIT_DG@STATE.CA.GOV) (see below for important data on the File Manager migration process)

#### 2. Customer runs the assessment tool only.

- a. Sends the output to IBM to perform the automated and manual migrations.
- b. IBM's Dianne Chidgey will contact the customer if any issues are encountered during the migration process.
- c. IBM will send the migrated files back to the customer to migrate back into production libraries.

**NOTE:** The Assessment tool (with instructions) will be sent to the Customer upon request. Send request for the tool to the Products Support Unit, [MAPS\\_UNIT\\_DG@STATE.CA.GOV](mailto:MAPS_UNIT_DG@STATE.CA.GOV)

#### 3. Customer submits an OTech Remedy Work Order for OTech/IBM to perform the Assessment and migration effort. Upon completion of file migrations:

- a. OTECH will save the migrated files in a temporary dataset created by the customer and notify the customer.
- b. The customer will migrate the migrated files back into production libraries. (See attached document for instructions on how to create the Work Order.)

# Q&A

## *Closing Remarks*

Thank  
YOU