



Problem Determination Tools for your SOA environment

February 18, 2009

WebSphere software

Agenda

The business climate for SOA

- Shifts in the market & leadership roles
- The business organization & IT expenditures can impact SOA success

System z as a SOA hub

- Reuse is the primary System z SOA driver
- IBM tools & product features can help

SOA scenarios & investments

- Customer Success Stories

Conclusion

Smart
SOA



Change is Accelerating . . . Will You Keep Up?



IBM Global CEO Study 2008

83%

Expect substantial or very substantial change

The change gap

Tripled

98%

Plan business model changes

Agility is a Smarter Business Outcome



What Does an Agile Organization Look Like?

Characteristics

Deep, continuous **alignment** between business and IT

Interdisciplinary **skills**

Efficiently **deliver and reuse** business applications

A non-complex, robust and resilient **connectivity infrastructure**

Governance that makes it easy to make the right decision

IT's strategic importance reflected in org chart

Behaviors

Active LOB participation in IT strategy formation

IT is part of business strategy, not an afterthought

Efficiencies are realized; applications fully meet user needs

Broader and faster collaboration and decision-making across ecosystem

Reuse is incentivized; clear decision rights management; consistent, enforced policies

CIO is part of executive council



Why is Improved Business/IT Alignment Important?

“Aligned IT and Business result in DOUBLE the productivity gains of isolated business and IT efforts”

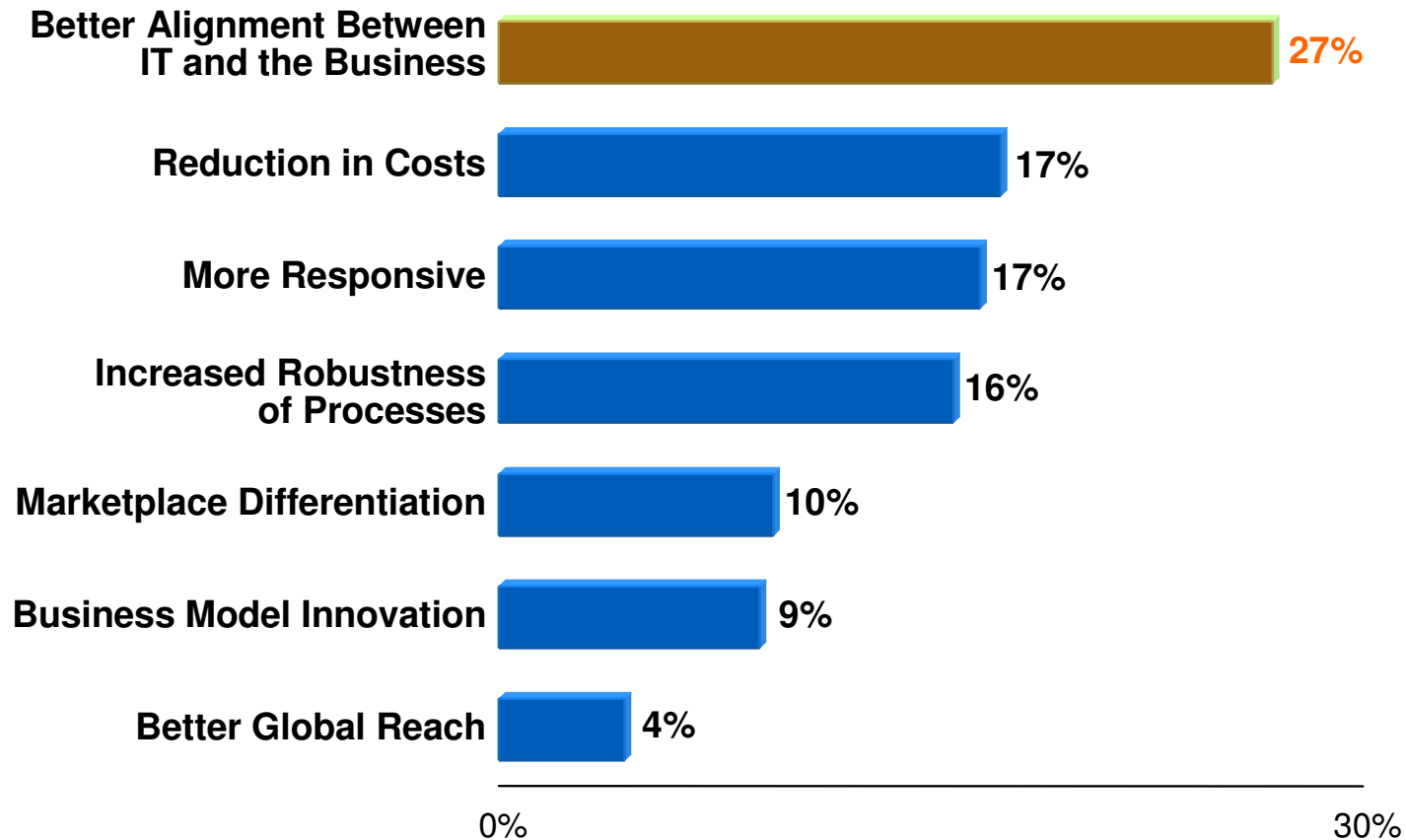


Source: London School of Economics – McKinsey survey and analysis of 100 companies in France, Germany, UK and US



Align Business and IT with SOA

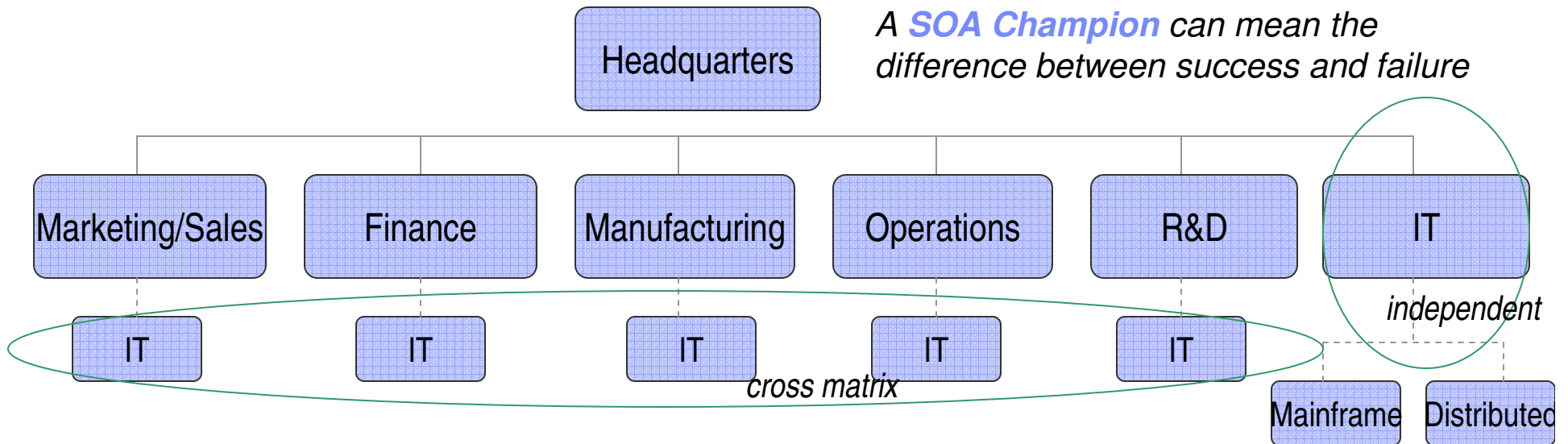
Nearly a third of customers indicate their company achieved a better alignment between IT and the business as result of their most recent SOA project.



Source: Survey at IBM IMPACT Event, April 2008



The Enterprise at a Glance



- Does your company have a business strategy that includes IT?
- How does your IT shop fit into the corporate organization - *independent operation, cross matrix, or both?*
- How integrated is your IT shop – *across disciplines, islands, or somewhere in between?*
- Is your IT organization divided - *mainframe & distributed platforms with different leadership?*
- Do “new workload” strategies exclude the mainframe entirely – *ineligible, no proof of concepts or technology, etc.?*



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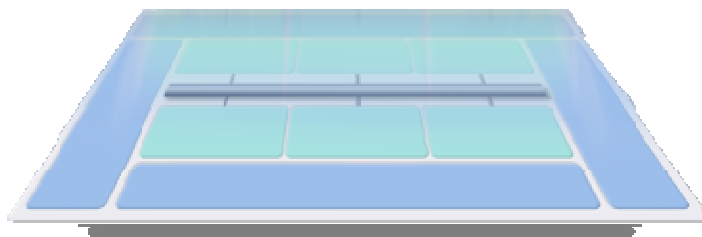
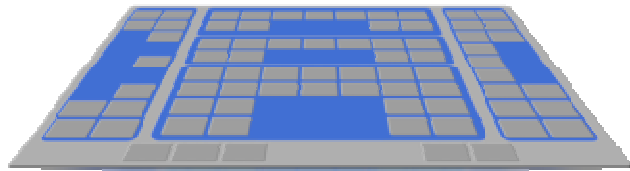
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A meet in the middle *approach to SOA on System z*



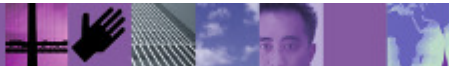
Begin with the business ... focus on identifying the needs of the business



Meet in the middle ... match the needs of the business to the mainframe assets in existence, and develop new only when the business needs are unmet.



Break out the technical inventory ... identify and expose valuable IT assets for reuse



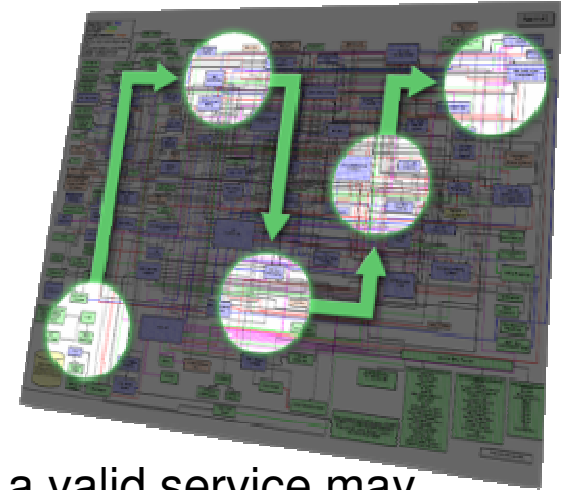
Service Enabling your SOA Assets

Begin by:

- Discovering your mainframe assets
- Understand their relationships

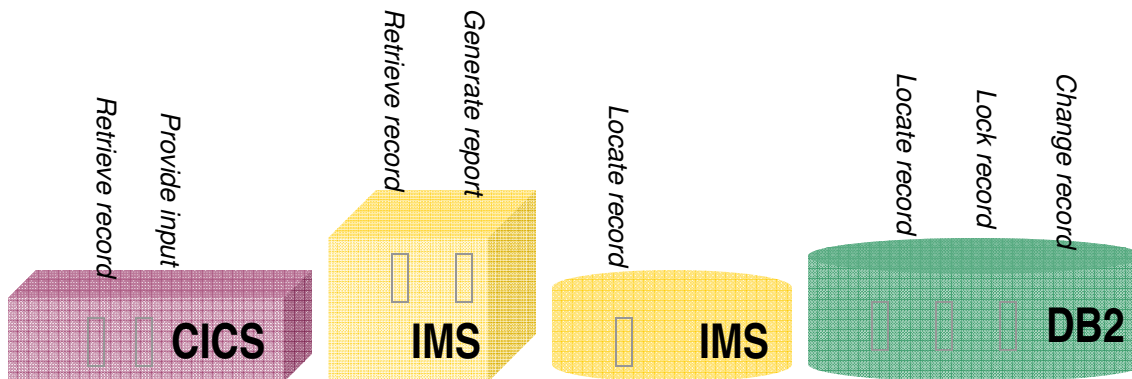
Sounds easy, right?

Services are business processes with business value ... a valid service may often require functions from different applications.



Some service examples:

- Update customer account
- Obtain credit report



Services that are **too coarse grained** are not as reusable



Services that are **too fine grained** provide little value



Modernize your System z Application Portfolio

Problem Determination Tools Support SOA

Tools for mainframe reuse

Value add

Performed by

Debug Tool

- Increase Debugging Efficiency
- Single Debugging Tool

Advanced source COBOL migration System z applications improves development productivity

Architects, project leaders, developers, system programmers

File Manager

- Testing Data
- Enhance File Processing
- Components for reuse

Comprehensive, user-friendly tools for working with z/OS, VSAM, CICS, DB2 or IMS data

Architects, project leaders, analysts, developers

Application Performance Analyzer

- Monitor Performance
- Application Analysis
- Application Understanding

Identify constraints and improve performance of z/OS applications

Architects, project leaders, analysts

Rational Developer for System z (RDz)

- Traditional Development
- Web Development
- Services Development

Common IDE for COBOL, PL/I, J2EE and Web services development

Architects, Developers



Problem Determination Tools Suite for z/OS

IBM Problem Determination Tools

IBM 2009 Offerings

Debug Tool
for z/OS V9

File Manager
for z/OS V9

Fault Analyzer
for z/OS V9

Application
Performance
Analyzer for
z/OS

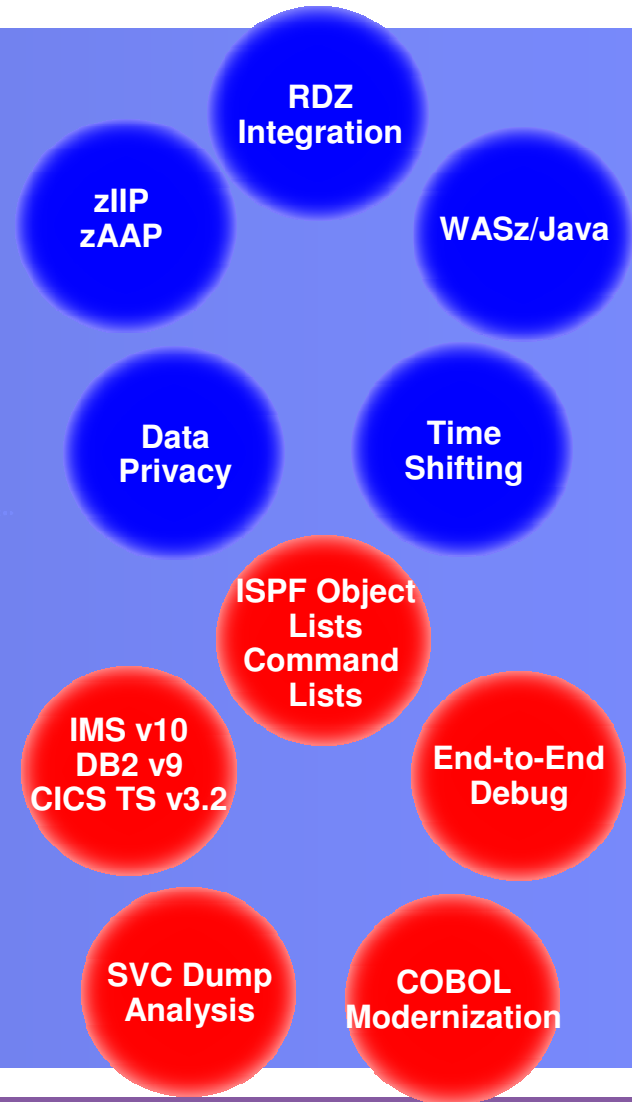
Workload Simulator
for z/OS & OS/390
Rational Functional Tester Ext
Rational Performance Tester z/OS

Optim Move
for DB2

Application Time
Facility

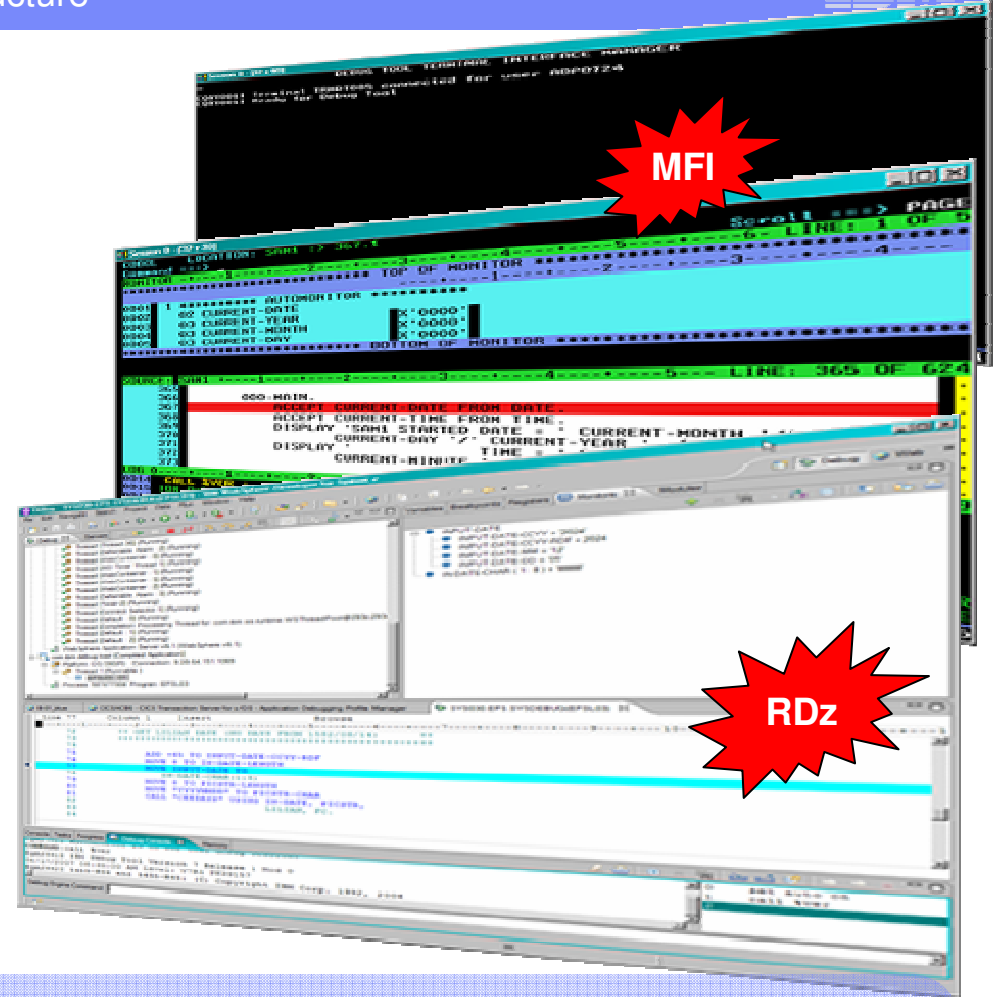
ISPF
Productivity Tool

www.ibm.com/software/awdtools/deployment



Debug Tool Highlights

- Common User Interface Across Systems And Subsystems
- Consistent Across Languages
 - COBOL (all versions), C/C++, PL/I, Assembler
- Environments Supported
 - CICS, TSO, JES/Batch, IMS including IMS/TM, DB2 Including Stored Procedures, Unix System Services (USS), WebSphere MQ
- Interfaces:
 - Terminal Interface Manager (UID)
 - VTAM Terminals (MFI)
 - Rational Developer for System z



New in Debug Tool V9.1:

- | | |
|-----------------------|---------------------------|
| Product consolidation | Usability improvements |
| XML support | Set up improvements |
| IPv6 support | CICS support improvements |



Debug Tool V9.1 SOA & Usability Enhancements

- RDz Integration
 - Outline View (Remote)
 - Breakpoint Actions and Commands
 - Debug Console Enhancements
- SOA
 - **While running on z/OS V1.8 or later, Debug Tool now provides support for invoking the z/OS XML parser to parse complete XML 1.0 or 1.1 documents in memory. XML is formatted and shown in log**
- Usability improvements
 - New prefix commands entered in the Source window enable you to display or monitor the value of a variable
 - WHEN condition has been added to the AT ENTRY and AT STATEMENT commands
 - New automonitor options display variable names and current values for both the current and previous statements
 - The SET LOG ON FILE command has been enhanced to control whether the information from new sessions replaces the existing contents of the specified file or is appended after any existing information
 - Saving and restoring of monitors expanded to allow saving and restoring of LOCAL monitors in addition to the GLOBAL monitors that were previously supported
 - Support for debugging AMode(64) assembler and disassembly programs; with the ability to display or alter 64-bit addressable storage using the LIST STORAGE, STORAGE and MEMORY commands



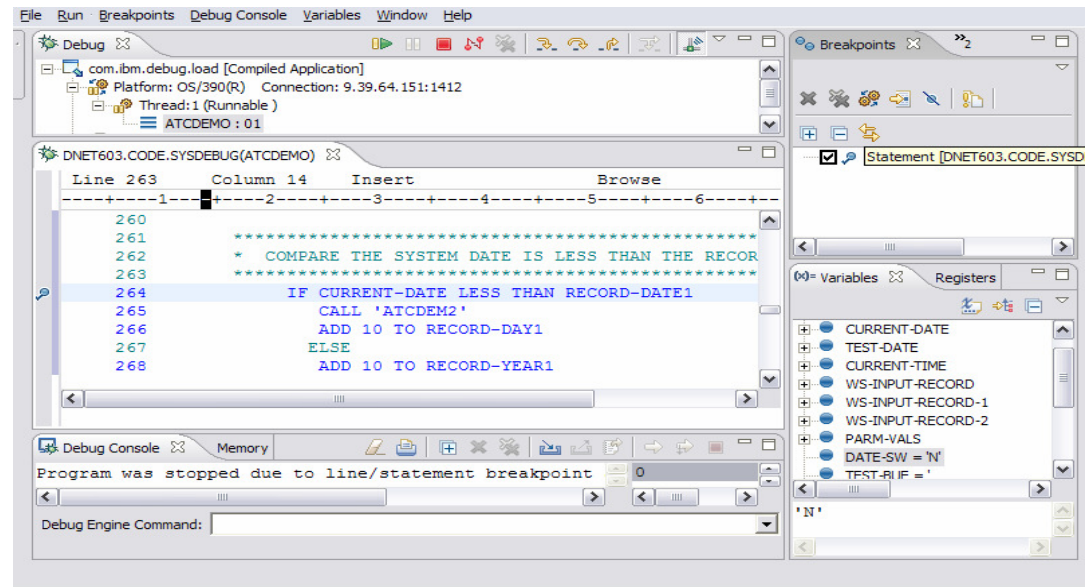
Debug Tool for z/OS

Problem

- Many System z developers are new to that environment and are not proficient with the 3270-based ISPF interface

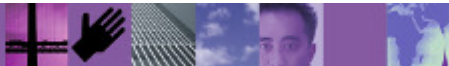
Solution

- DT provides a complete solution all from within Rational Developer for System z that you developers already know & understand



Value

- DT can help you increase debugging efficiencies and reduce application-development cycle times.



Debug Tool gets you moved to Enterprise COBOL Ready for CICS TS V3.2

Problem

- Older COBOL programs require migration in order to be prepared for the CICS TS 3.2 thread safe environment

Solution

- Identify all OS/VS COBOL executables and source
- Convert the OS/VS COBOL (COBOL 74) source to COBOL 85 standard and rebuild the modules
- Test all converted modules and migrate to production

```

Session A - [24 x 80]
----- Debug Tool - Load Module Analyzer -----
Session A - [32 x 80]
----- CCCA Conversion selection -----
Program source:
Project . . . ==>
Library . . . ==>
Type . . . . . ==>
Member . . . . ==>
Options:
Language level ==> * (* 1-11)
CICS . . . . . ==> N (Y N)
SQL . . . . . ==> N (Y N)
DLI . . . . . ==> N (Y N)
(Blank for member list, * for all members)
Other source file:
Data set name ==> 'DNET603.OSVS.COBOL'
Copy libraries:
DDNAME ==> SYSLIB LIBRARY ==> 'DNET603.OSVS.COPY'
====>
====>
====>
====>
====>
====>
Output source:
Program library ==> 'DNET603.C390.SOURCE'
Copy library. . ==> 'DNET603.C390.COPY'

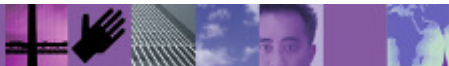
PF1 Help PF3 Exit PF4 Return ENTER Build JCL

Command ==>
F1=Help F2=Split F3=Exit F5=Refresh F7=Up F8=Down
F12=Cancel

06 / 024
Connected to remote server /host demomvs.demopkg.ibm.com using lu/pool TCP0013 and port 23
HP DeskJet 820Cse on LPT1:
    
```

Value

- DT can help to easily and efficiently migrate older COBOL programs and prepare you to better debug and test entire applications.



Application Performance Analyzer for z/OS (APA)

- Measure & report resource use in any z/OS address space
- Isolates application performance problems across applications – subsystems (DB2, IMS, CICS, MQ, USS, WAS), languages, & DASD
 - Identify constraints
 - Non-intrusive
 - Helps with design, development & maintenance
- Supports C/C++, Assembler, COBOL, PL/I, Java & CICS, DB2, IMS, WebSphere MQ & WAS
 - CICS TS V1 to V3, IMS V7 to V10, DB2 V7 to V9

New in Application Performance Analyzer V9.1

XML output

Enhancements: CICS, IMS & Usability

Recommendations support enhancements

Specialty processor support

The image displays several screenshots of the Application Performance Analyzer (APA) interface. The top-left screenshot shows a command-line menu with options like 'Main/Measurement', 'CPU Usage Analysis', and 'CPU Util. Analysis'. A red starburst labeled 'ISPF' is overlaid on this screenshot. The top-right screenshot shows a 'Session B - STLAB6.WS' window with a menu and a table of CPU utilization data. A red starburst labeled 'Interactive' is overlaid on this screenshot. The bottom-left screenshot shows a 'Table of Contents' for a report, listing various system components like 'APF Measurement Profile (CIC)' and 'Last Module Summary (DB2)'. A red starburst labeled 'PDF reports' is overlaid on this screenshot. The bottom-right screenshot shows a detailed view of CPU utilization with multiple bar charts and data tables. A red starburst labeled 'XML reports in RDz' is overlaid on this screenshot.



Fine Tune Overall Application Performance

Problem

- The complexities of CICS applications often mean that performance problems come to light, not only with CICS, but DB2, IMS, MQ, and across languages or DASD

Solution

- APA helps programmers identify constraints and improve the entire applications performance, no matter where the problem resides. In addition to drilling down through CICS transactions and tasks, TCB activity can also be analyzed. Baselines can be taken to compare with future analysis runs after changes are made

File View Navigate Help			
E03: CICS CPU Usage by Transaction (0104)			Row 00001 of 00020
Command ==>			Scroll ==> CSR
Name	NTxns/Description	Percent of CPU Time * 10.00%	±7.4%
SSP1	28	38.04	*.....1.....2.....3.....4.....5.....6.....7
→ DFHD2EX1	CICS Program	10.85	█
→ SSTEP1	CICS Program	8.15	█
→ LGIPOL01	EXEC SQL	7.60	█
→ +2102	SELECT	7.60	█
→ CICS	System Services	4.34	█
→ SSTEP1	EXEC CICS	3.25	█
→ +0892	RECEIVE MAP(SSMAP1)	1.63	█
→ +0EE4	SEND MAP(SSMAP1)	1.08	█
→ +0908	LINK PROGRAM(LGIPOL01)	0.54	█
→ LGIPOL01	EXEC CICS	1.08	█
→ LGIPOL01	CICS Program	1.08	█
→ EQADCXXT	EXEC CICS	1.08	█
→ EQADCXXR	EXEC CICS	0.54	█
SSC1	22	37.50	█

MA a A 12/007

Value

- Provides the responsive and speedy information which is required to assist with application performance resolution, whether implementing thread safe applications, or utilizing other subsystems or languages



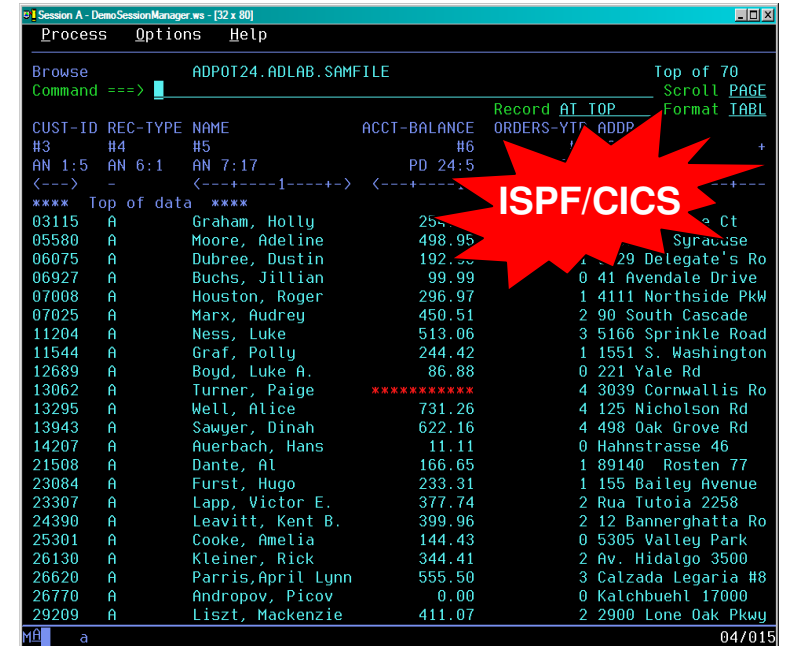
Application Performance Analyzer V9.1 – SOA and Usability Enhancements

- XML format reports - easily reused by other applications (i.e; RDz)
- Recommendations support enhanced
- **Enhancement of source mapping from the appropriate files in the program**
- **Map source statements to load modules with C/C++ Elf/Dwarf side files**
- **New warning message when the date and time stamp on the load module do not match the source information**
- **Multiple job measurement wildcard support**
- **Sort initial display of sample files by list by date/time**
- **Commonly used primary commands helps new users**



File Manager Highlights

- Find & change data within specific fields
- Identify fields that contain invalid values
- Use selection criteria and/or sampling to limit the number/type of records in Browse/Edit
- Edit entire files regardless of size
- Copy or print selected records and fields
- Test data generation on record layouts
- Compare data between datasets using field level mapping
- Interfaces: ISPF, CICS, RDz



New in File Manager V9.1:

Enhanced RDz integration	Usability improvements
Mixed-case XML support	Performance enhancements
IPv6 support	



File Manager for z/OS (FM)

Problem

- You want to modernise and extend your System z application inventory but it's taking too long to bring your new developers up to speed with the files and databases they need to work with

Solution

- File Manager identifies the structure of your records and displays and allows manipulation of each field according to its data type

```

Process  Options  Help
-----
File Manager                               Utility Functions
Command ==> 6

0  DBCS          Set DBCS data format for print
1  Create        Create data
2  Print         Print data
3  Copy          Copy data
4  Dslist        Catalog services
5  VTOC          Work with VTOC
6  Find/Change   Search for and change data
7  AFP           Browse AFP data
8  Storage       Browse user storage
9  Printdsn      Browse File Manager print data set
10 Loadlib       View load module information
11 Compare       Compare data
12 Audit trail   Print audit trail report
13 Copybook      View and Print

F1=Help    F2=Split    F3=Exit    F4=CRetriev  F7=Backward  F8=Forward
F9=Swap    F10=Actions F12=Cancel

```

Value

- Promotes understanding and speeds the development process



File Manager V9.1 – SOA and Usability Enhancements

- Data formatting
 - **Generates mixed case XML from mixed case COBOL data definitions (ADATA)**
 - Mixed case COBOL field names when generating a template using the Enterprise COBOL V4.1, or later (ADATA)
 - **Assembler DSECT Support**
- Reporting and UI
 - **Includes ISPF compatibility – Clipboard support (overlay, copy, cut, and paste)**
 - Provides an equivalent of the ISPF OVERLAY prefix commands, COLS prefix command, COPY primary command, and CUT and PASTE commands
 - Extended Tally support (for batch component)
- Support of Extended Address Volumes
- IPv6 support



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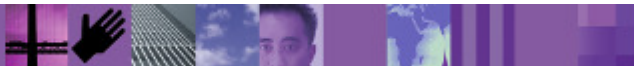
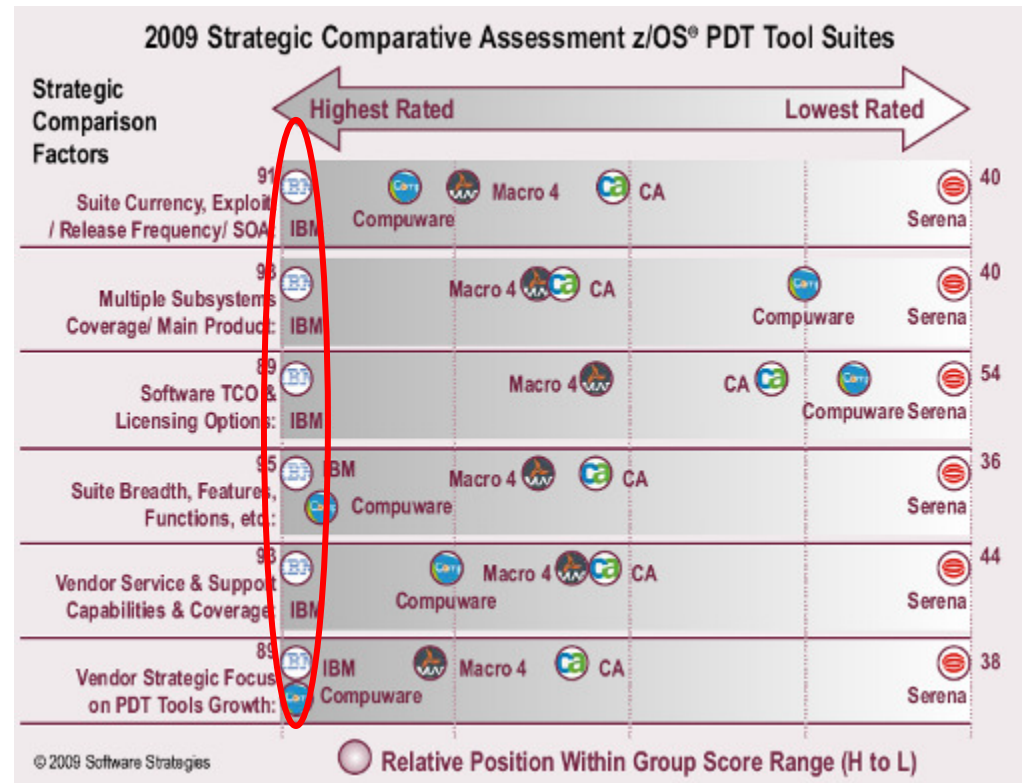
Smart
SOA



IBM Problem Determination Tools Wins Top Spot

Software Strategies Analyst Report, January 2009

- **IBM's PDT Suite Extends Technology Lead:**
 - IBM successfully challenged existing vendors in this segment since 2000
 - Modern, well-featured, fully integrated, inclusive, and good-value
 - Latest suite (V9.1) has now extended clear technology, feature and functional leadership
 - Offered at attractive prices/terms, and represents excellent value
 - 2 additional customer case studies



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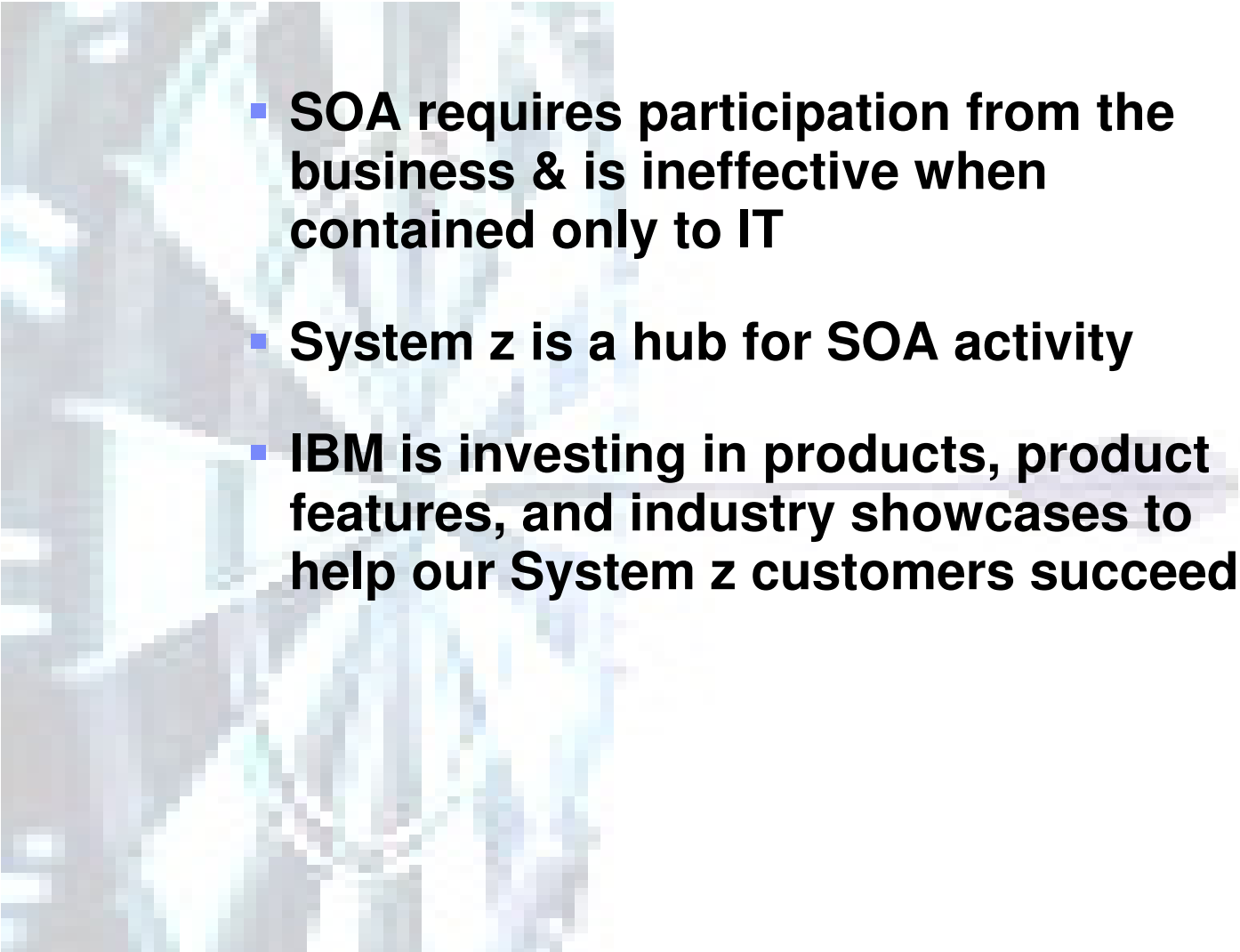
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Conclusion

- 
- **SOA requires participation from the business & is ineffective when contained only to IT**
 - **System z is a hub for SOA activity**
 - **IBM is investing in products, product features, and industry showcases to help our System z customers succeed**



Additional Resources

- System z SOA homepage with links to customer testimonials, events
ibm.com/software/os/systemz/soa/
- z/OS Problem Determinations Tools Family Page
ibm.com/software/awdtools/deployment/
- IBM Redbook: IBM Application Development and Problem Determination Tools V9
redbooks.ibm.com/abstracts/sg247661.html
- AR Report - Problem Determination Tools: Retooling System z for SOA Workloads Growth
software.ibm.com/webapp/iwm/web/preLogin.do?lang=en_US&source=swg-rszwg
- Case Study: BayernLB consolidates with IBM Debug Tool and Rational Developer for System z
ftp.software.ibm.com/common/ssi/pm/ab/n/rac14032usen/RAC14032USEN.PDF
- Case Study: Large Swedish Bank Reduces Fees for Abend Analysis and Manipulation Tools
ibm.com/software/success/cssdb.nsf/CS/CPOR6ZS44C?OpenDocument&Site=default&cty=en_us



THANK
YOU

