



Extending Your Mainframe For More Business Value

Extend Development Team Productivity

Service Oriented Finance Needs Productive Development Tools

We have a lot of new solutions to build. If I build them all on System z, I will have to find more System z development skills



**Service Oriented Finance
Development Manager**

With modern tools from Rational, even your inexperienced programmers will be productive



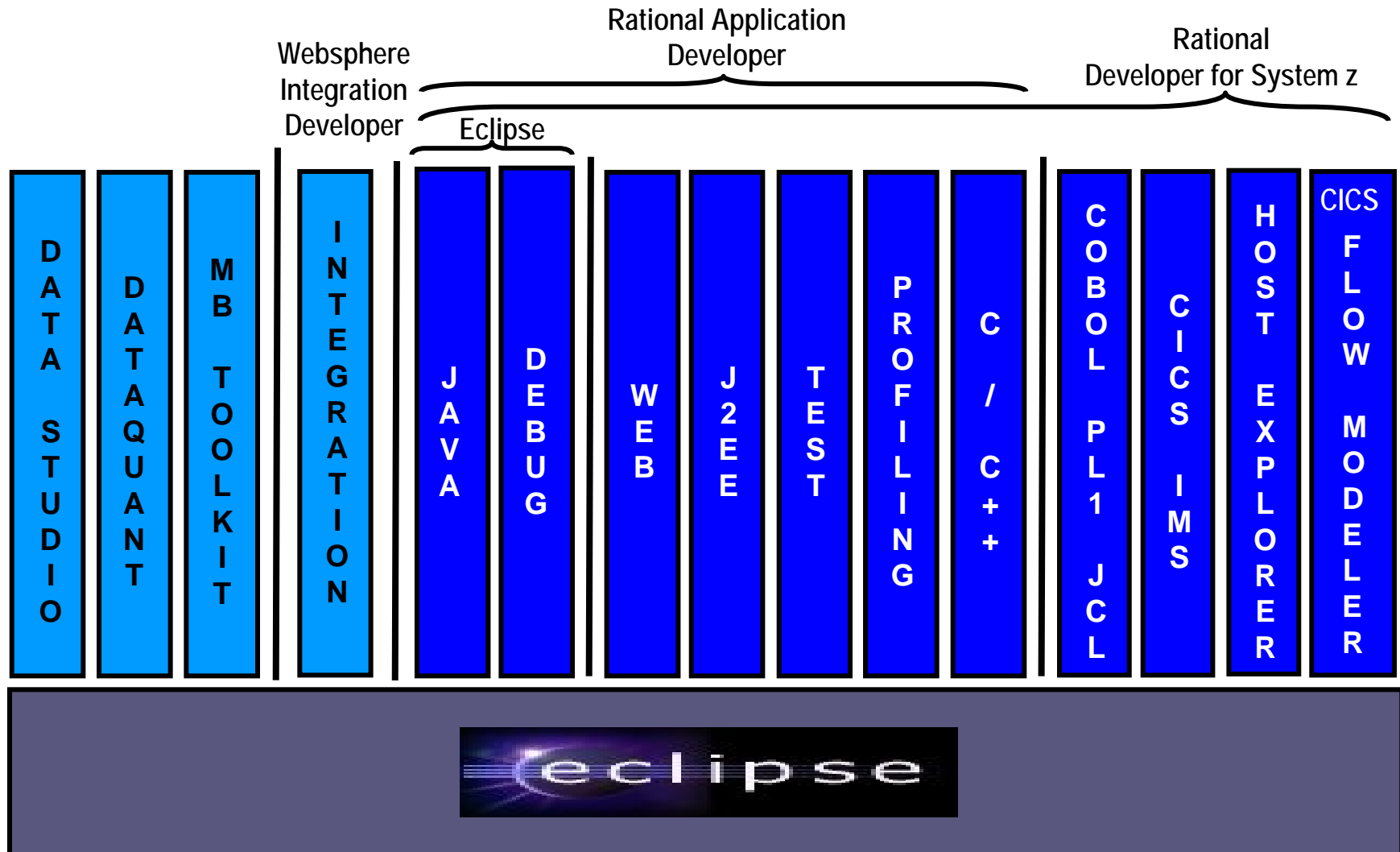
IBM

Rational Developer For System z (RDz)

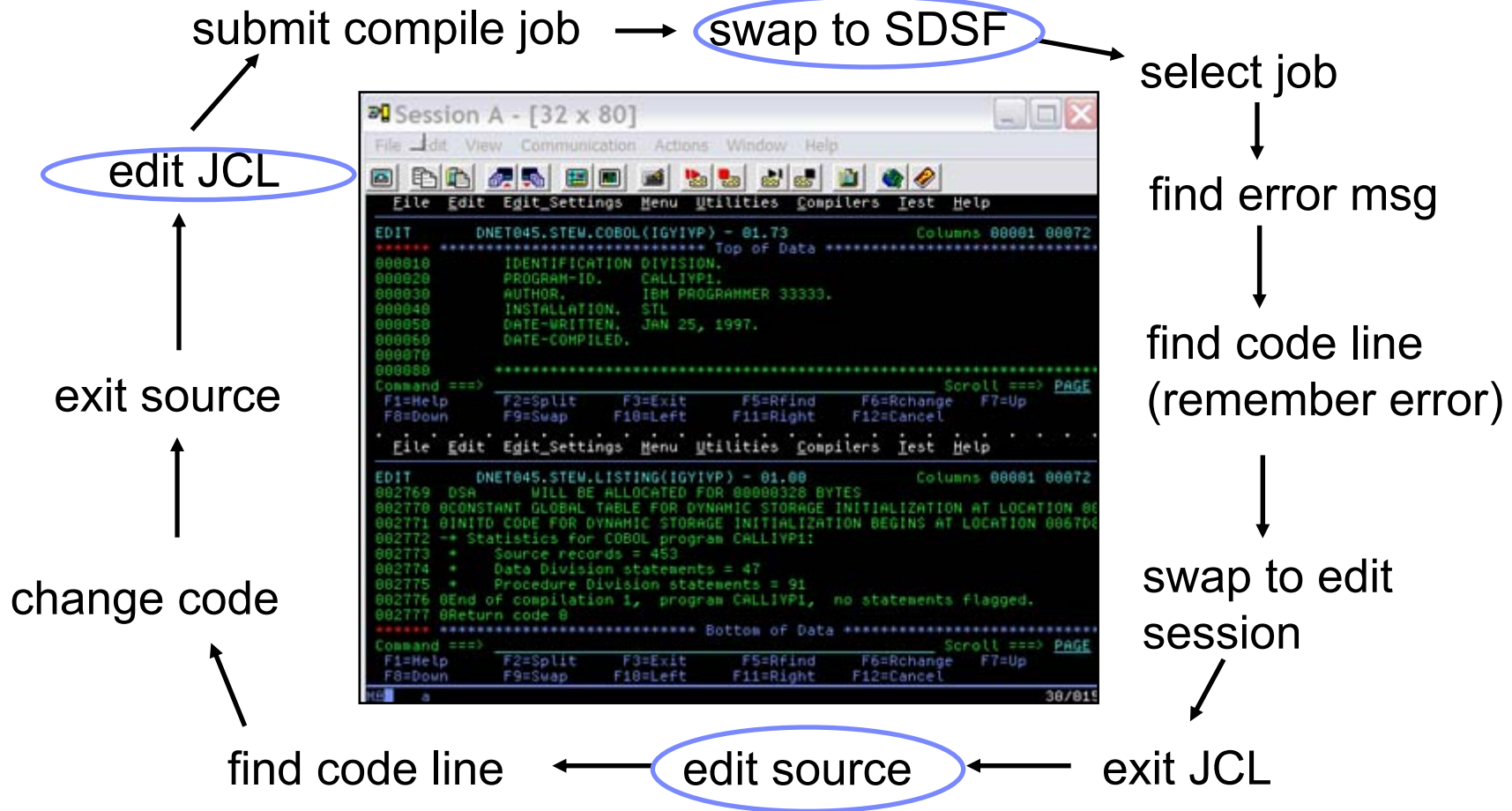
- IBM's latest tool for System z development
 - ▶ Version 7.1 shipped Sep 2007
- Single integrated tool for developing mainframe applications using both traditional and newer technologies
 - ▶ Develop traditional **COBOL/PL1/ASM/JCL/BMS/EGL** applications
 - ▶ Develop **Java/J2EE** and Web applications, including JSF and struts
- Boosts developer productivity compared to green screen tools
 - ▶ Workstation tool based on Eclipse
- Leverage existing assets in a Service Oriented Architecture
 - ▶ Quickly expose CICS, IMS and DB2 assets as native services
 - ▶ Visually wire together CICS transactions into a business flow

IBM Development Tools Are Built On Eclipse

Function delivered as perspectives in eclipse – **blue plug-ins ship with RDz**



ISPF: How Does Traditional “Green Screen” Development Work?



- Programmer goes through a sequence of screens in order to get the job done
 - ▶ 3.4 listings, job listings, SDSF outputs, etc.
- Programmer is constantly flipping back and forth between these ISPF screens

RDz Highlights For Traditional Mainframe Development

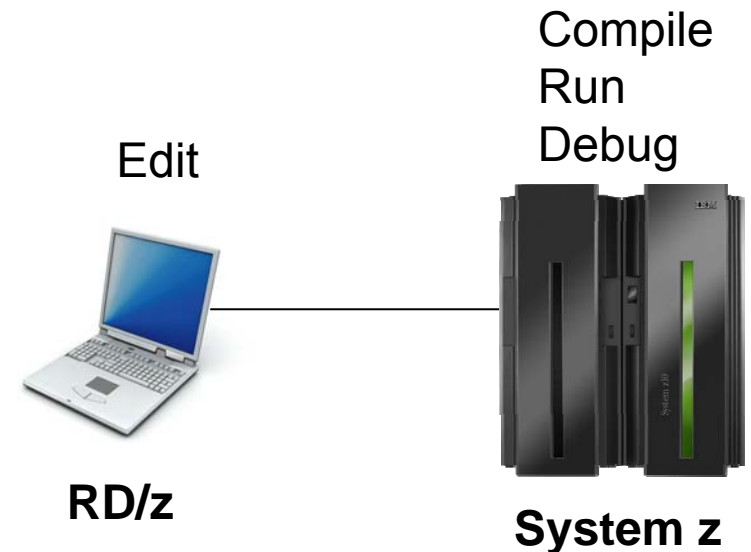
- Interactive, workstation-based environment
 - ▶ Interactive access to z/OS
 - ▶ Work with host files as though they are local

- Boosts developer productivity compared to “green screen” tools
 - ▶ Interactive edit/compile/debug on the workstation
 - Work offline or online
 - ▶ Interactive job generation, submission, monitoring, command execution
 - ▶ Supports different runtimes (CICS, IMS, Batch, USS, DB2, WAS)
 - ▶ Language sensitive editors

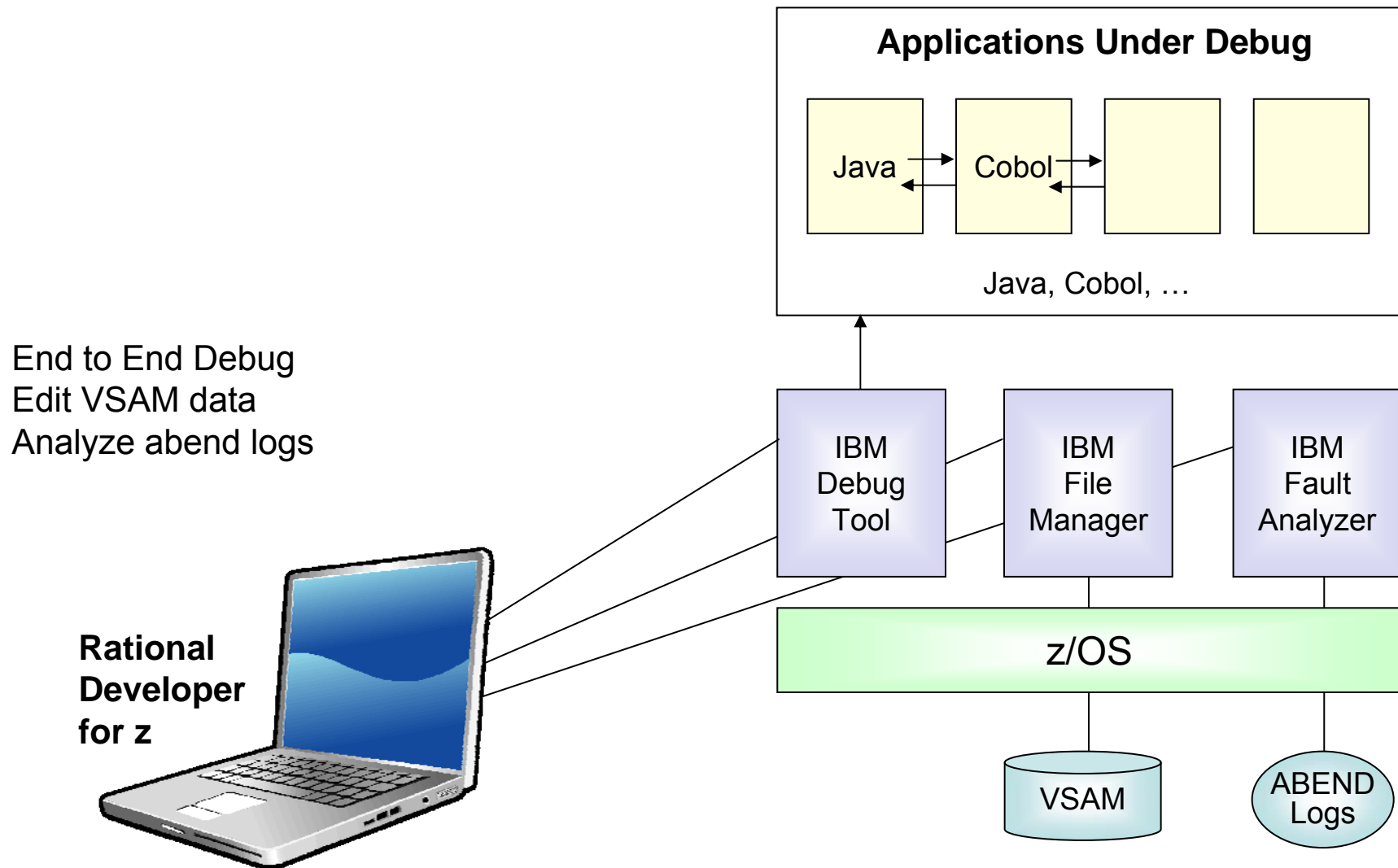
- Can access different host based Source Code Management systems through a unified interface
 - CARMA (Common Access Repository Manager)

DEMO: Introducing Rational Developer For System z

- Perspectives and views
- Remote System Explorer
- Working with host datasets
- Language-sensitive COBOL editor
- Works with DB2 on z/OS
- Productivity features
- Edit/Compile/Visual Debug



Interactive Problem Determination: RDz Integrates With Host-based PD Tools



Inexperienced Programmers Can Be Productive

- An independent study from Branham Group concluded:
 - ▶ Using RD/z, a developer with no mainframe experience can be **just as productive** as an experienced ISPF programmer
 - ▶ In addition, the RD/z developer achieved
 - 44% productivity advantage in COBOL and PL/1 edit, compile, debug activities
 - 3 times productivity advantage in creating web services
- Workstation based edit and unit test saves mainframe cycles
 - ▶ Customers at Fiducia, Deutsche, Nationwide observed an 80% reduction in the cost of compiles

http://www.branhamgroup.com/wdz_study

Customer Example

COMMERZBANK 

Background:

- ▶ German bank providing financial services to private companies across Europe
- ▶ Provider of online banking services

Challenge:

- ▶ Upgrade teller workstations and ensure they continue to work with an existing third-party COBOL run-time environment

Solution:

- ▶ New application framework based on **IBM COBOL**
- ▶ **WDz** to design new COBOL and other code

“In one tool, we have a single development environment for multiple environments. I don’t have to jump between different tools to do different tasks. The tool is very complete.”

- Armin Schiller, transaction banking payments and cash transactions, Commerzbank AG

Another Tool To Help Inexperienced Programmers

- **WebSphere Studio Asset Analyzer (WSAA)**
- Powerful tool for Discovery and Impact Analysis
 - ▶ Search for application assets
 - ▶ Understand asset structure and relations
 - find dependencies across applications and lines of business
 - ▶ Perform data flow and impact analysis
 - ▶ Extract code for re-use
- Supports both mainframe and distributed assets
- Results are displayed in easy-to-read graphical windows
 - ▶ Uses a Web Interface



WSAA Can Discover And Take Inventory Of A Wide Variety Of Mainframe Assets

- Source code: COBOL (including copybooks), PL/I, assembler, and JCL
 - ▶ Source code can be in a partitioned data set (PDS or PDSE) or controlled by a source control management (SCM) product.
- CICS online regions and transactions
- IMS subsystems and transactions
- SQL statements (DCLCURSOR, DCLTABLE, DELETE, FETCH, INSERT, SELECT, UPDATE)
- DB2 catalogs (columns, stored procedures, systems, tables, and views)
- MQ calls and queues
- J2EE assets

DEMO: WebSphere Studio Asset Analyzer

The screenshot displays the WebSphere Studio Asset Analyzer interface. The top navigation bar includes 'Home', 'Explore', and 'Impact a'. The main window is titled 'Explore MVS assets' and shows a search for 'AC* QA*'. A table on the left lists asset types and their counts.

Run time	Total	Results
Batch job	30	4
CICS group	123	0
CICS online region	4	0
CICS transaction	468	25
DB2 system	3	0
IMS DBD	11	0
IMS subsystem	3	0
IMS transaction	23	0
Run unit	358	17

The central diagram shows a flow of assets: CICS AC02, ACCT02, ACCT04, ACCTERR, ACERLOG, and ACCTFIL. A 'Direct Impact' box shows the following results:

- Starting with 1 data elements in 1 programs
- 17 Data elements
- 0 Entry points
- 1 Other impacted programs

The 'Impact analysis details' window shows the following information:

Impact analysis details: Impact analysis results

Context: Home | Impact analysis summary | Impact analysis details

Actions: Select an Action

Details

- Impact analysis: QAD01:MASTER-STK-PART-NO
- Description: GENERATED for Program QAD01, Data element MASTER-STK-PART-NO
- Type of asset analyzed: Impact Analysis - Data element
- Program/Element: QAD01/MASTER-STK-PART-NO
- Created/last updated: 3/22/05 4:51 PM by ASILBER / 3/22/05 4:53 PM by ASILBER

Overview Summary Details

The following impact analysis diagram shows a subset of assets that this proposed code change directly and indirectly affects.

- Direct Impacts:** 0 CICS transactions, 0 IMS transactions, 6 Batch jobs, 17 Data elements, 0 Entry points, 1 Other impacted programs.
- Indirect Impacts:** 2 CICS transactions, 0 IMS transactions, 1 Batch jobs, 29 Data elements, 2 Programs.
- Assets affected:** 4 Data sets, 6 Data stores, 0 IMS segments, 0 DB2 tables.

A Look At Rational Enterprise Generation Language (EGL)

- A simplified high level programming language that lets developers write full-function applications quickly
 - ▶ Supported by new development tool, Rational Business Developer (RBDDe)
- Code in higher level language, then generate to language of choice (Java or COBOL)
 - ▶ Tight integration with Java Server Faces
- Well suited for “business oriented developers”
 - ▶ Who are used to using Oracle Forms, Informix 4GL, Visual Basic, and RPG
- Learn and use quickly and easily

Service Oriented Finance Needs Testing Tools

I need to make sure our new solutions are fully tested



**Service Oriented Finance
Test Manager**

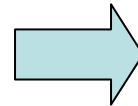
With Rational testing tools you can be confident that the deployed applications will be of the highest quality and have the best performance.



IBM

Rational Functional Tester

- Use Rational Functional Tester
 - ▶ Record/Enhance/Execute scripts on Windows/Linux
 - ▶ Functional test any .NET, web, or Java application (z or non-z)

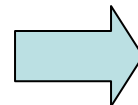


.NET, Browser, Java UI

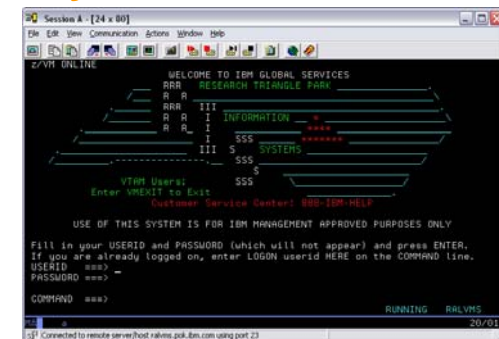


- Use Rational Functional Tester Extension for Terminal-based Applications

- ▶ Record/Enhance/Execute scripts on Windows
- ▶ Functional test System z terminal based applications



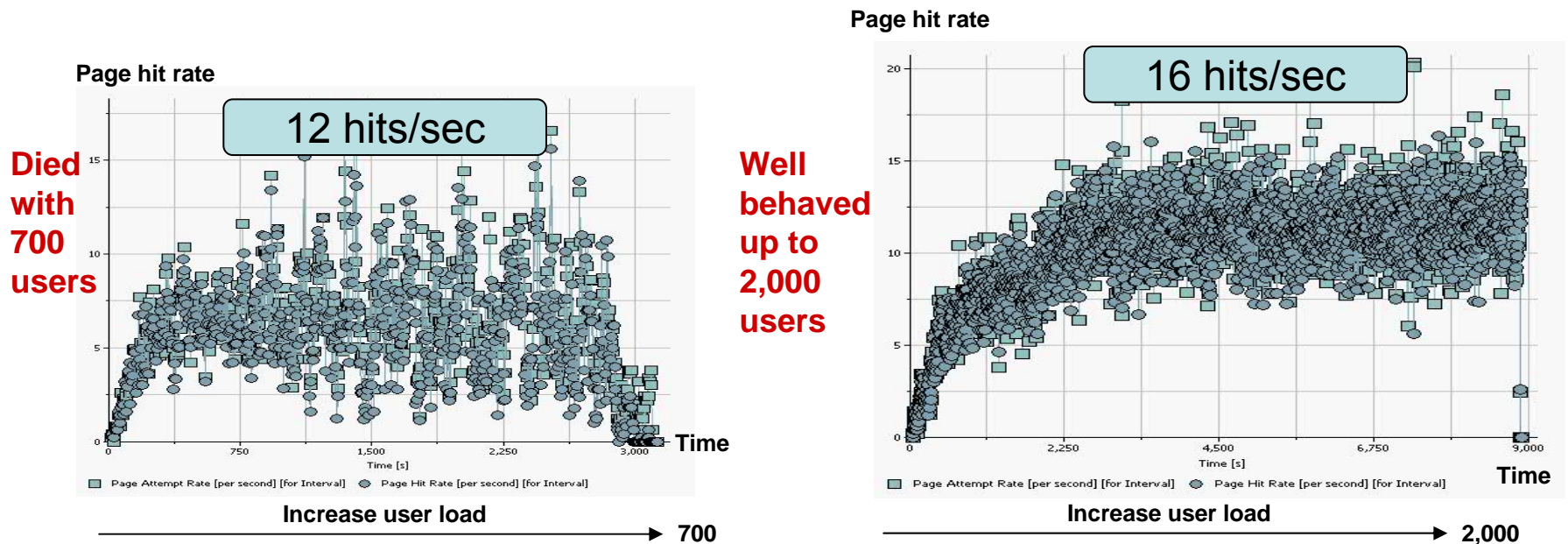
System z Terminal UI



Performance Testing

Definition: Testing conducted to evaluate the compliance of a system or component with specified performance requirements¹

- The evaluation of a system's capability to provide acceptable response times and function while serving a large number of clients
- Also known as Load Testing, Capacity Testing, or Stress Testing

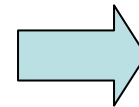


¹[IEEE 90] Institute of Electrical and Electronics Engineers. *IEEE Standard Computer Dictionary: A Compilation of IEEE Standard Computer Glossaries*. New York, NY: 1990.

Rational Performance Tester And Workload Simulator

■ Use Rational Performance Tester for z/OS

- ▶ Develop scripts on Windows or Linux
- ▶ Execute scripts on z/OS
- ▶ Performance test any web application (z or non-z)

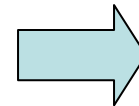


Any Web Application

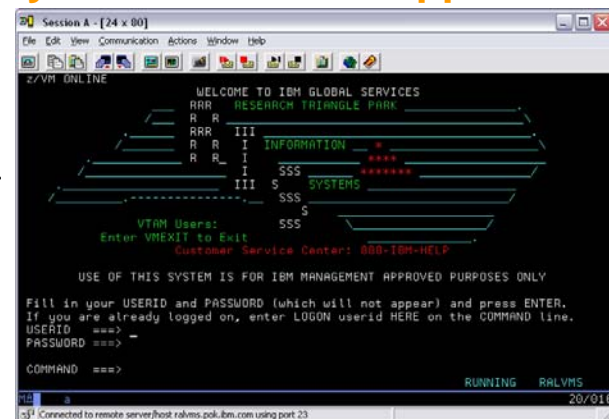


■ Use IBM Workload Simulator

- ▶ Develop scripts on z/OS
- ▶ Execute scripts on z/OS
- ▶ Performance test any System z terminal application



System z Terminal Application



Summary

- Improve the productivity of mainframe application developers with **Rational Developer for System z, WebSphere Studio Asset Analyzer, Rational Business Developer Extension**
 - ▶ And quickly deploy new hires or distributed programmers

- Improve the quality of applications with **Rational Functional Tester, Rational Performance Tester, and IBM Workload Simulator**

