



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



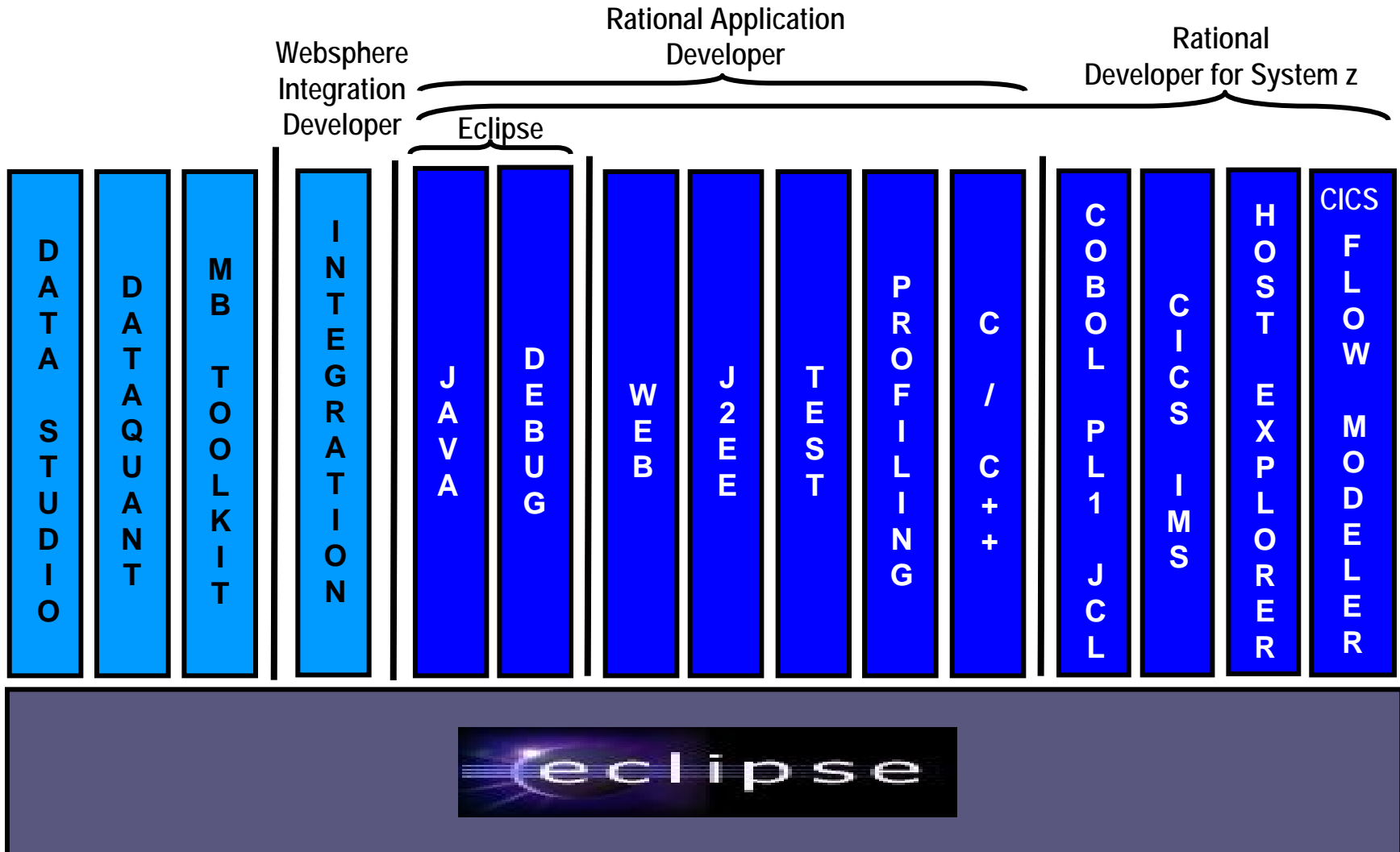
IBM

Rational Developer For System z (RDz)

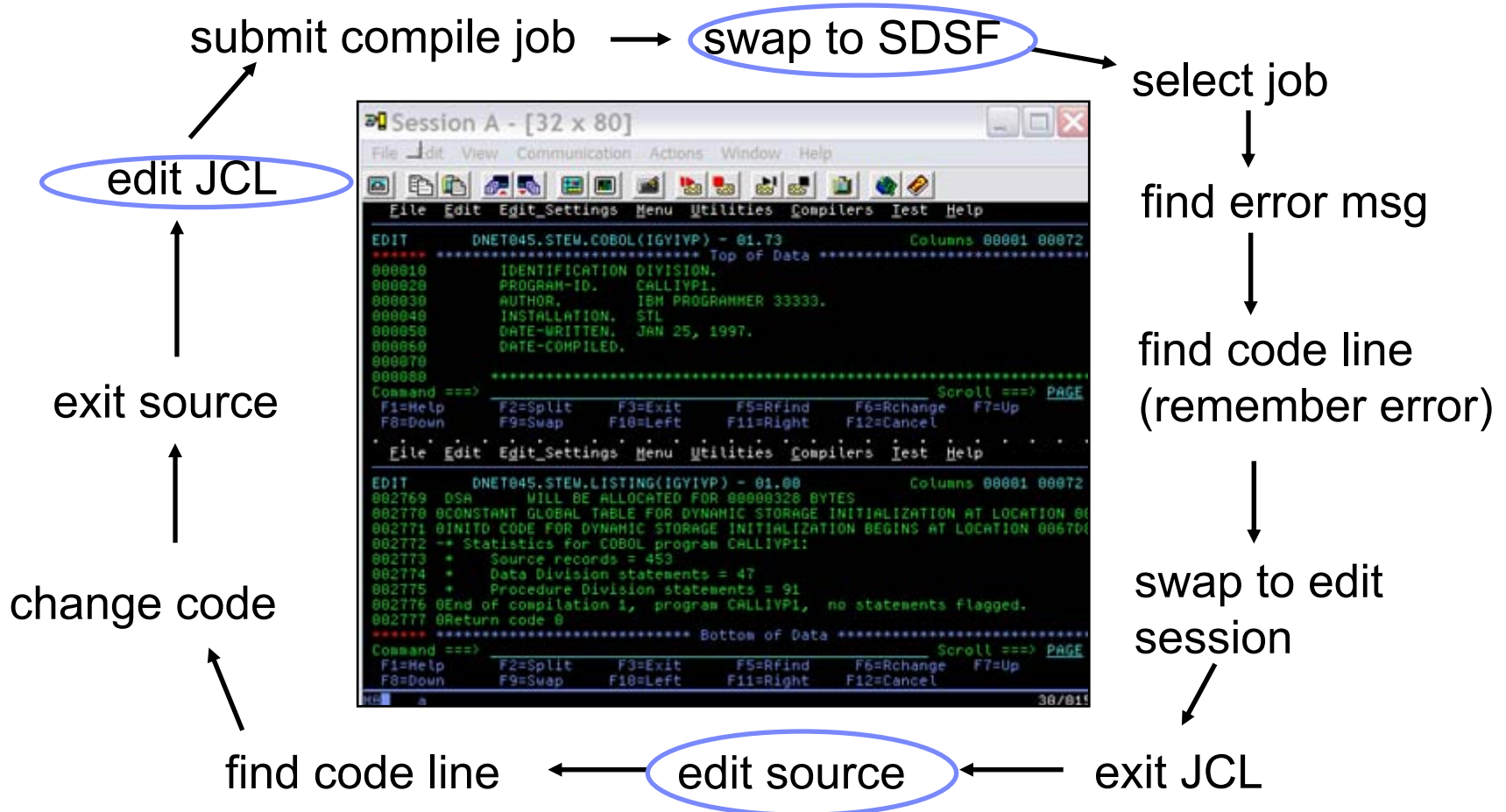
- IBM's latest tool for System z development
 - ▶ Version 7.1 shipped Sep 2007
- Single integrated tool for developing mainframe applications using both traditional and newer technologies
 - ▶ Develop traditional **COBOL/PL1/ASM/JCL/BMS/EGL** applications
 - ▶ Develop **Java/J2EE** and Web applications, 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

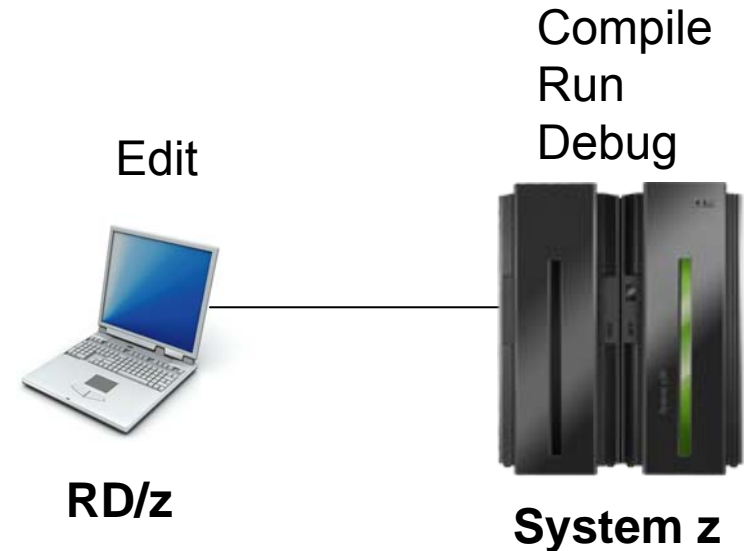
- Interactive, workstation-based environment
 - ▶ Interactive access to z/OS
 - ▶ Work with host files as though they are local

- 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

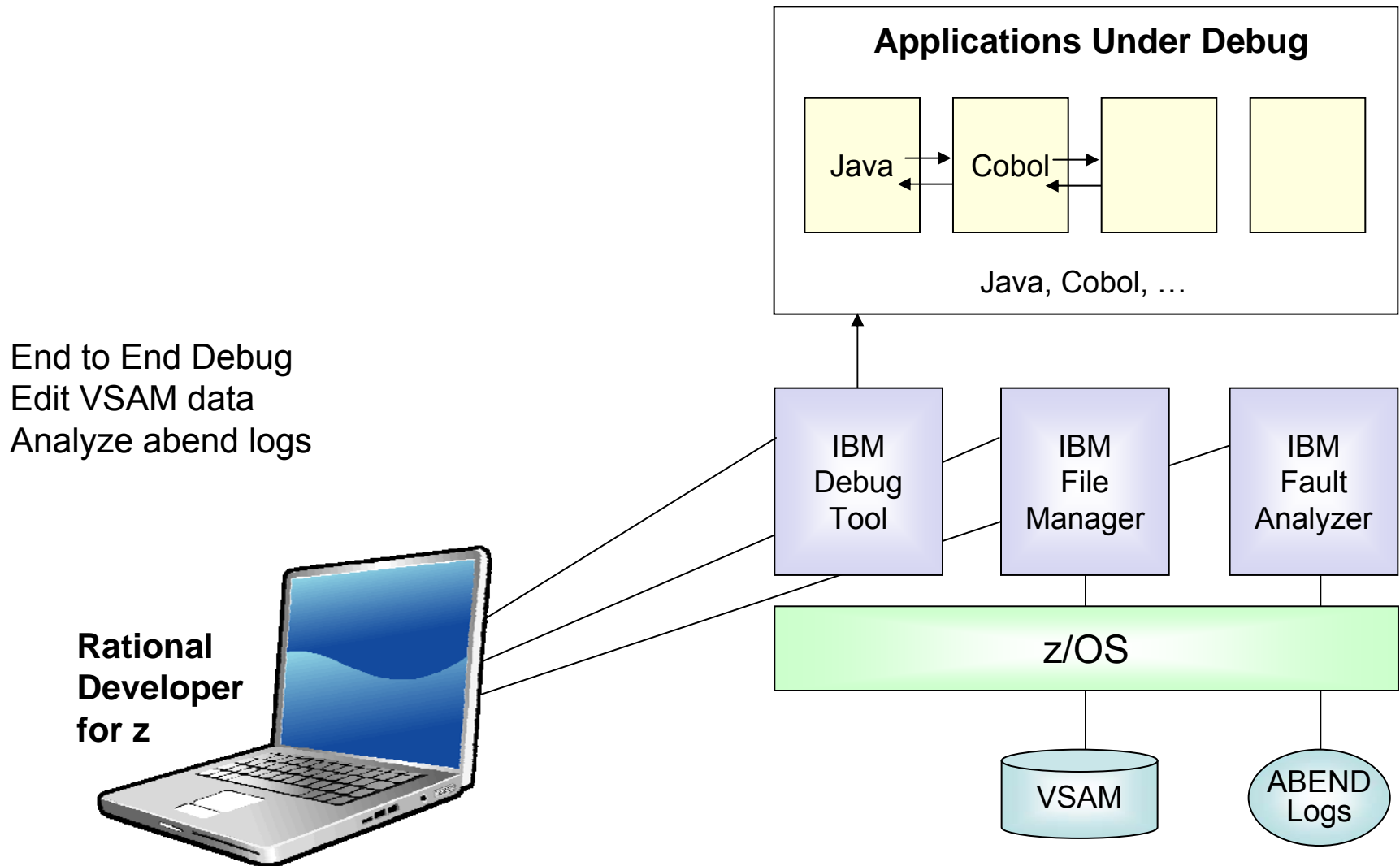
- Can access different host based Source Code Management systems through a unified interface
 - CARMA (Common Access Repository Manager)

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



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**
- ▶ **RDz** 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

WebSphere Studio Asset Analyzer for Multiplatforms
Version 4.2

File Edit View Favorites Tools Help

Select an Action

Home Explore Impact

Explore MVS assets

Explore MVS assets: AC* QA*

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

Context: Home Impact analysis summary Impact analysis details

Impact analysis details: Impact analysis results

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.

```

    graph TD
      Root["0 CICS transactions  
0 IMS transactions"] --> Direct["Direct Impacts"]
      Root --> Indirect["Indirect Impacts"]
      Direct --> DirectBox["Starting with 1 data elements  
in 1 programs  
17 Data elements  
0 Entry points  
1 Other impacted programs"]
      Indirect --> IndirectBox["29 Data elements  
2 Programs"]
      DirectBox <--> DB["4 Data sets  
6 Data stores  
0 IMS segments  
0 DB2 tables"]
      IndirectBox <--> DB
  
```

Direct Impact

Starting with 1 data elements in 1 programs

17 Data elements
0 Entry points
1 Other impacted programs

4 Data sets
6 Data stores
0 IMS segments
0 DB2 tables

0 CICS transactions
0 IMS transactions

6 Batch jobs

2 CICS transactions
0 IMS transactions

1 Batch jobs

29 Data elements
2 Programs

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 (RBDe)
- 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**

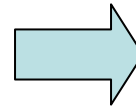
With Rational testing tools you can be confident that the deployed applications will be of the highest quality and have the best performance.



IBM

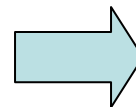
Rational Functional Tester

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

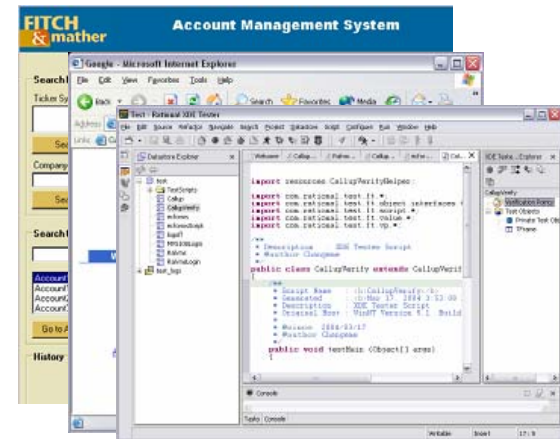


- Use Rational Functional Tester Extension for Terminal-based Applications

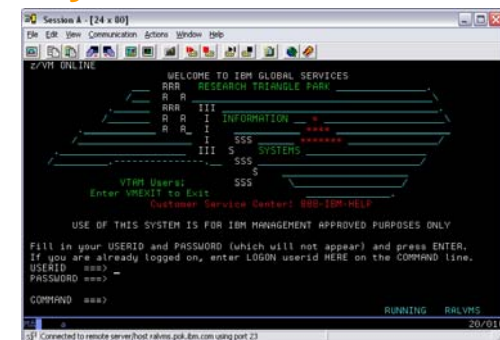
- ▶ Record/Enhance/Execute scripts on Windows
- ▶ Functional test System z terminal based applications



.NET, Browser, Java UI



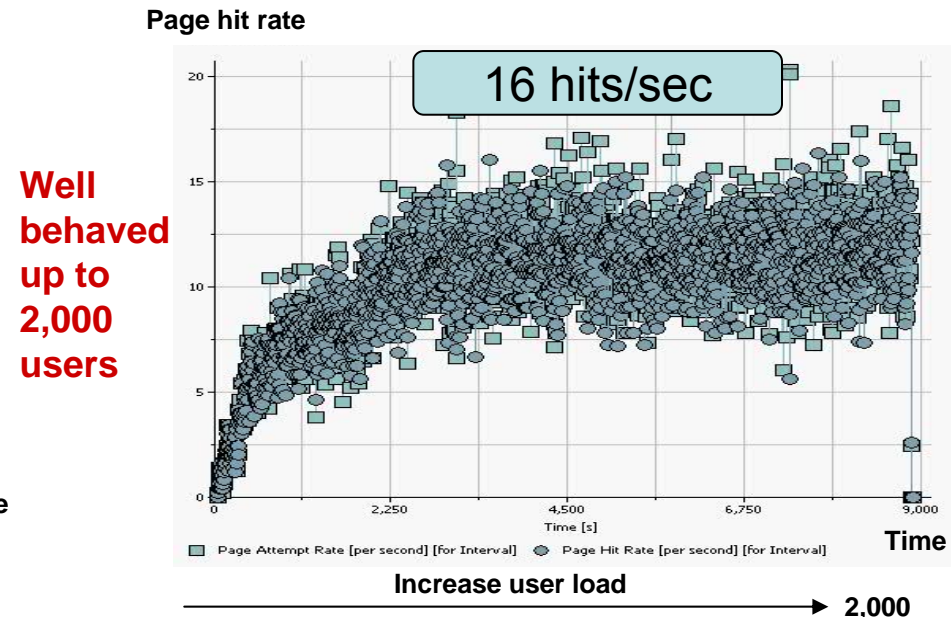
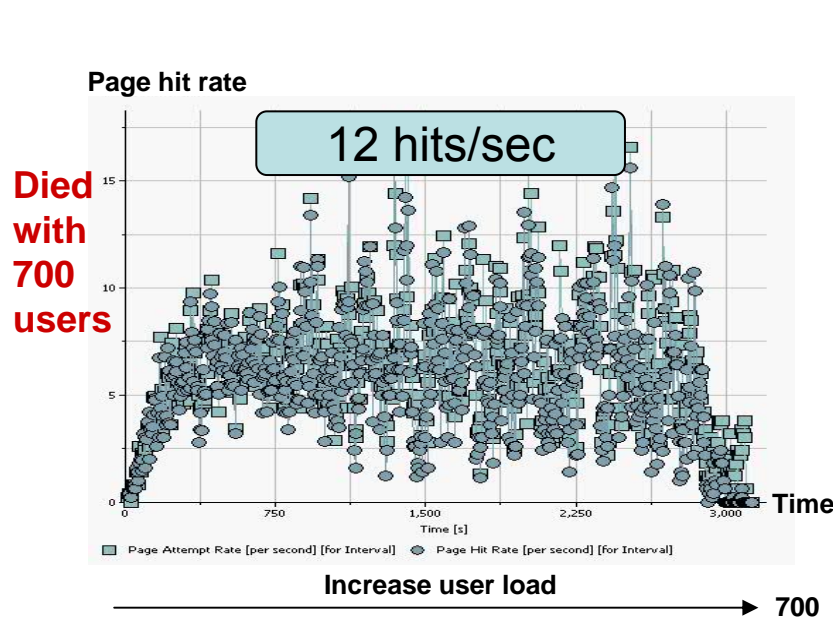
System z Terminal UI



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.

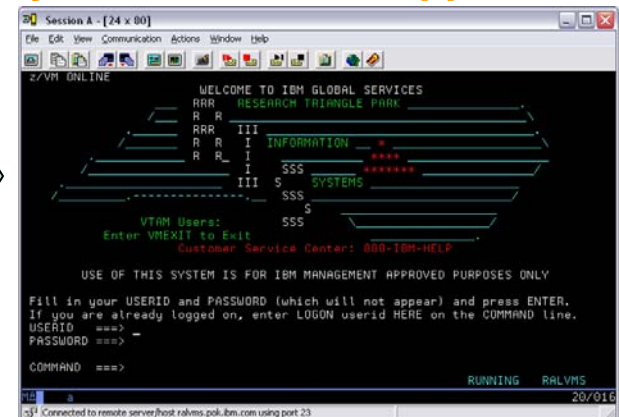
Rational Performance Tester And Workload Simulator

- 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)
- Use IBM Workload Simulator
 - ▶ Develop scripts on z/OS
 - ▶ Execute scripts on z/OS
 - ▶ Performance test any System z terminal application

Any Web 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**

