



New Realities in Enterprise Modernization - Driving down the costs of Innovation



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IBM Distinguished Engineer

Chief Architect for Enterprise Modernization Tools,
IBM Software Group

Many businesses are challenged by growing complexity

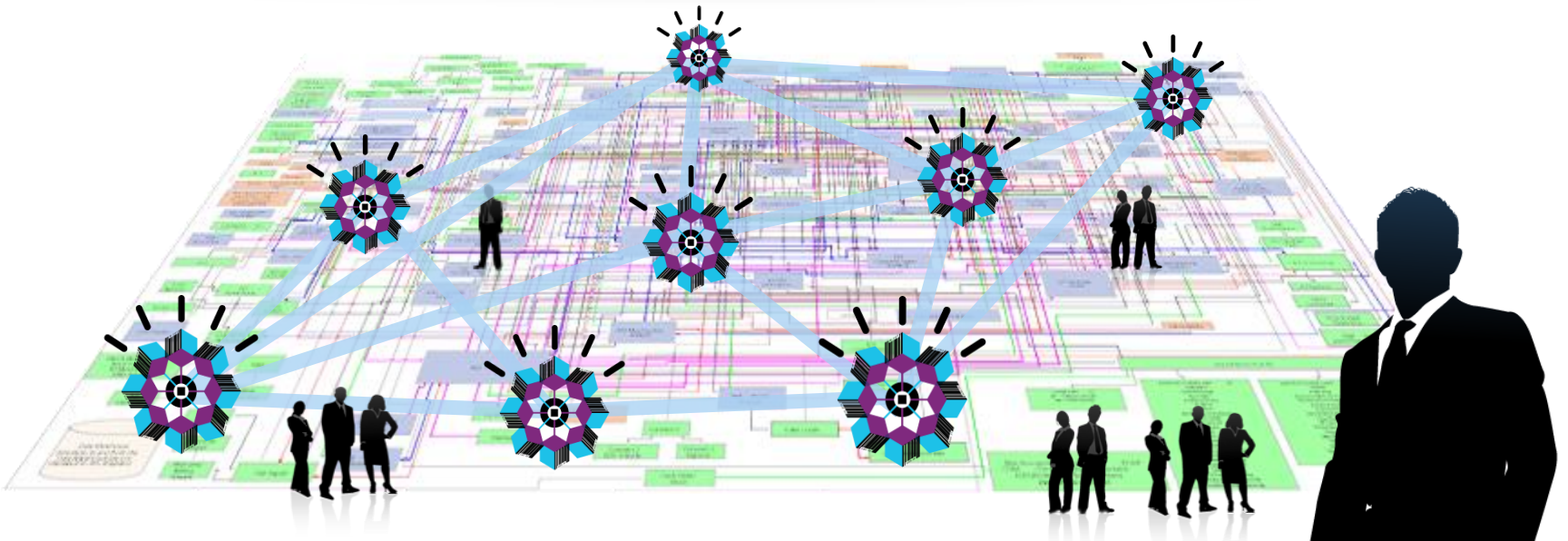
8 in 10 CEOs anticipate significant complexity ahead.



Half Feel prepared to handle it.

30%
complexity gap

Source: IBM Global CEO Study 2010
"Capitalizing on complexity".

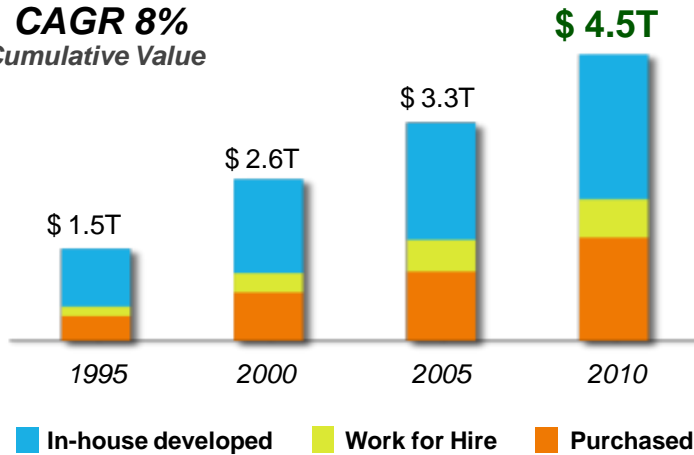


Growing Complexity

...and the numbers can be unpleasant

Investment

CAGR 8%
Cumulative Value



Challenges

- **70%** budget locked in maintenance
- **80%** of Mainframers are 50+ years old
- **50%** IT projects rolled back
- **85%** of distributed computing capacity is idle



Mainframe



Distributed

...and IT is often viewed as a root cause



"For IT to regain relevance, it must reinvent itself as an organization that moves beyond its legacy burdens and helps the business take charge of the new IT capabilities available in the market."

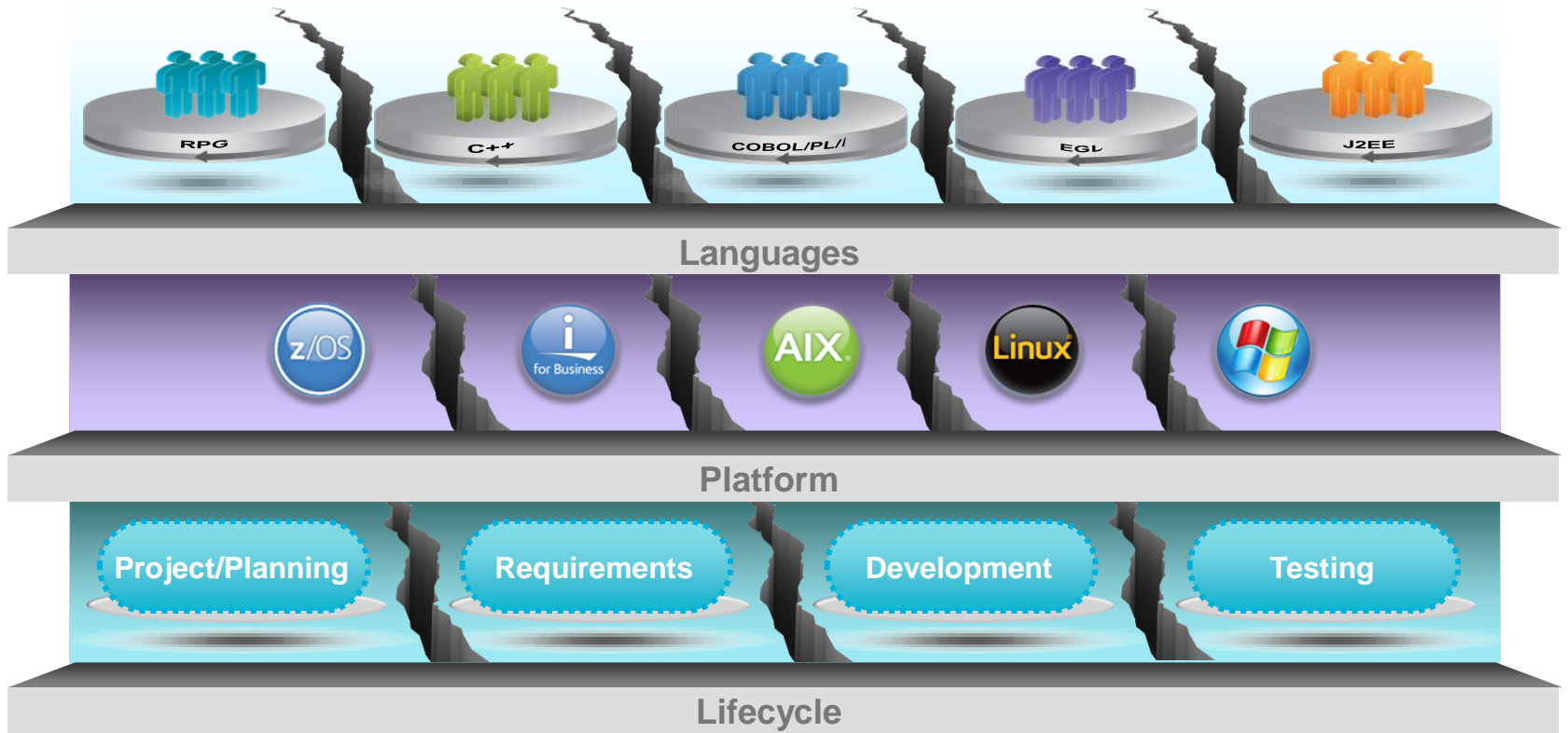
Enterprise Modernization: A low risk, high return approach



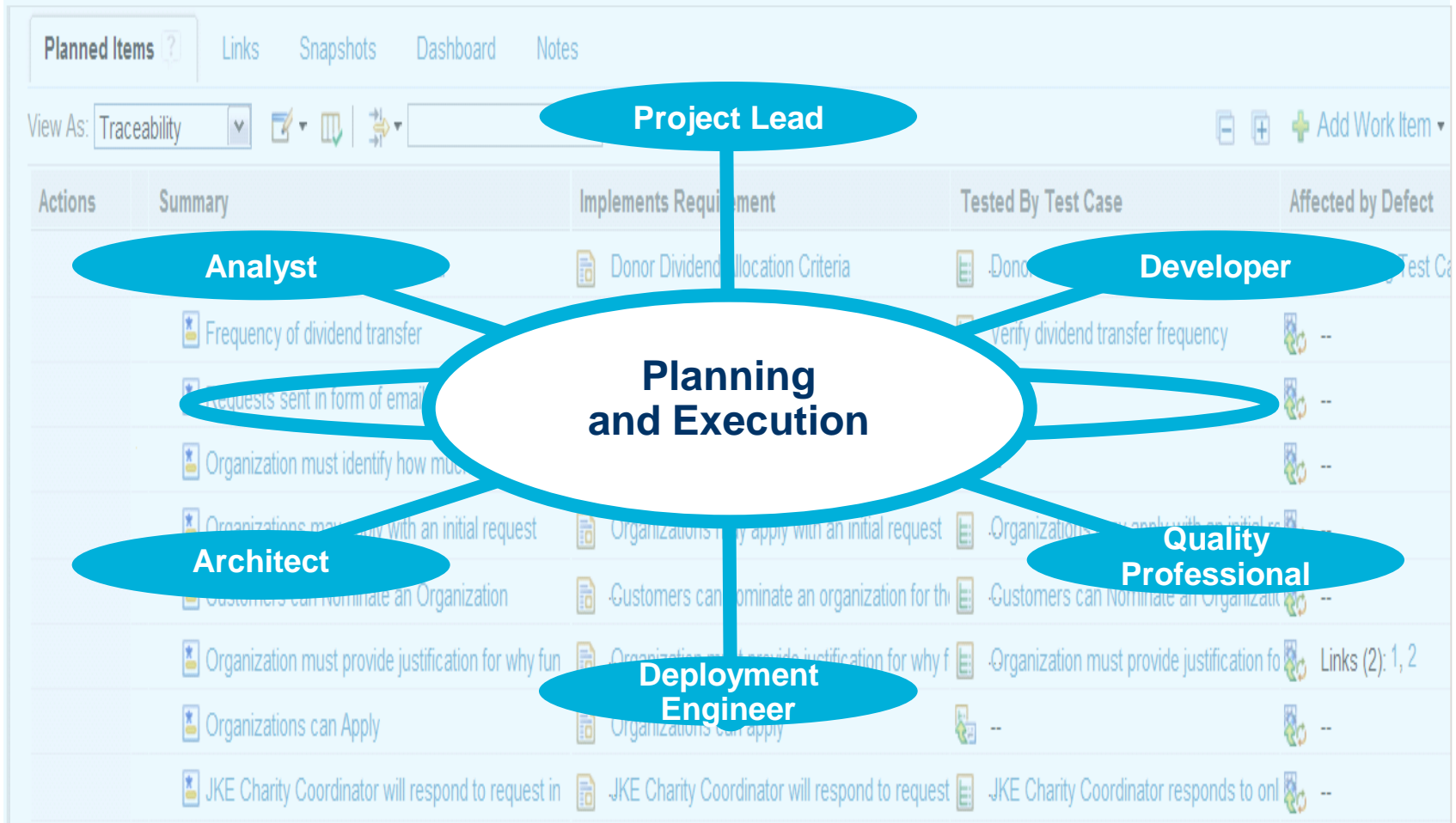
Maximize organizational agility and performance by unifying development teams and modernizing skills



Enterprise Integration Barriers

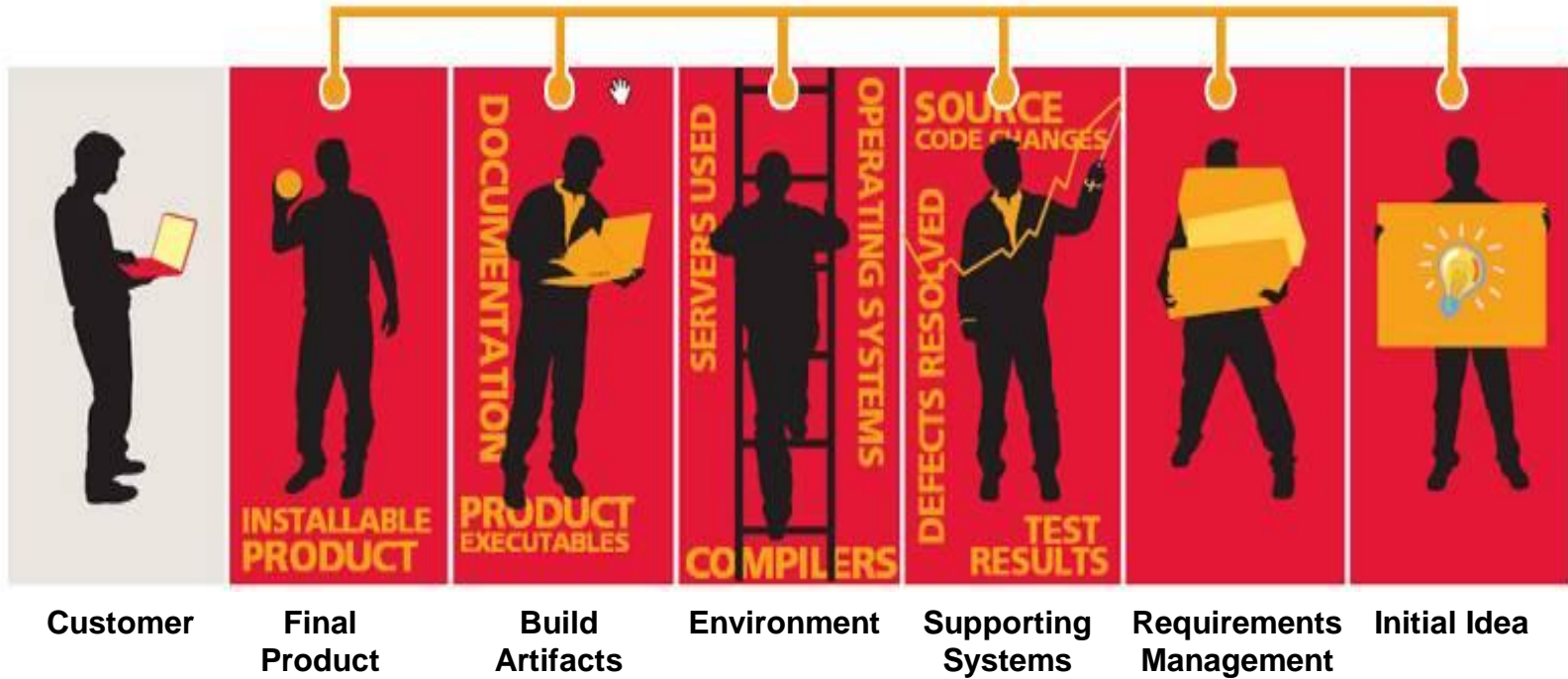


Imperative 1: Real-Time Planning

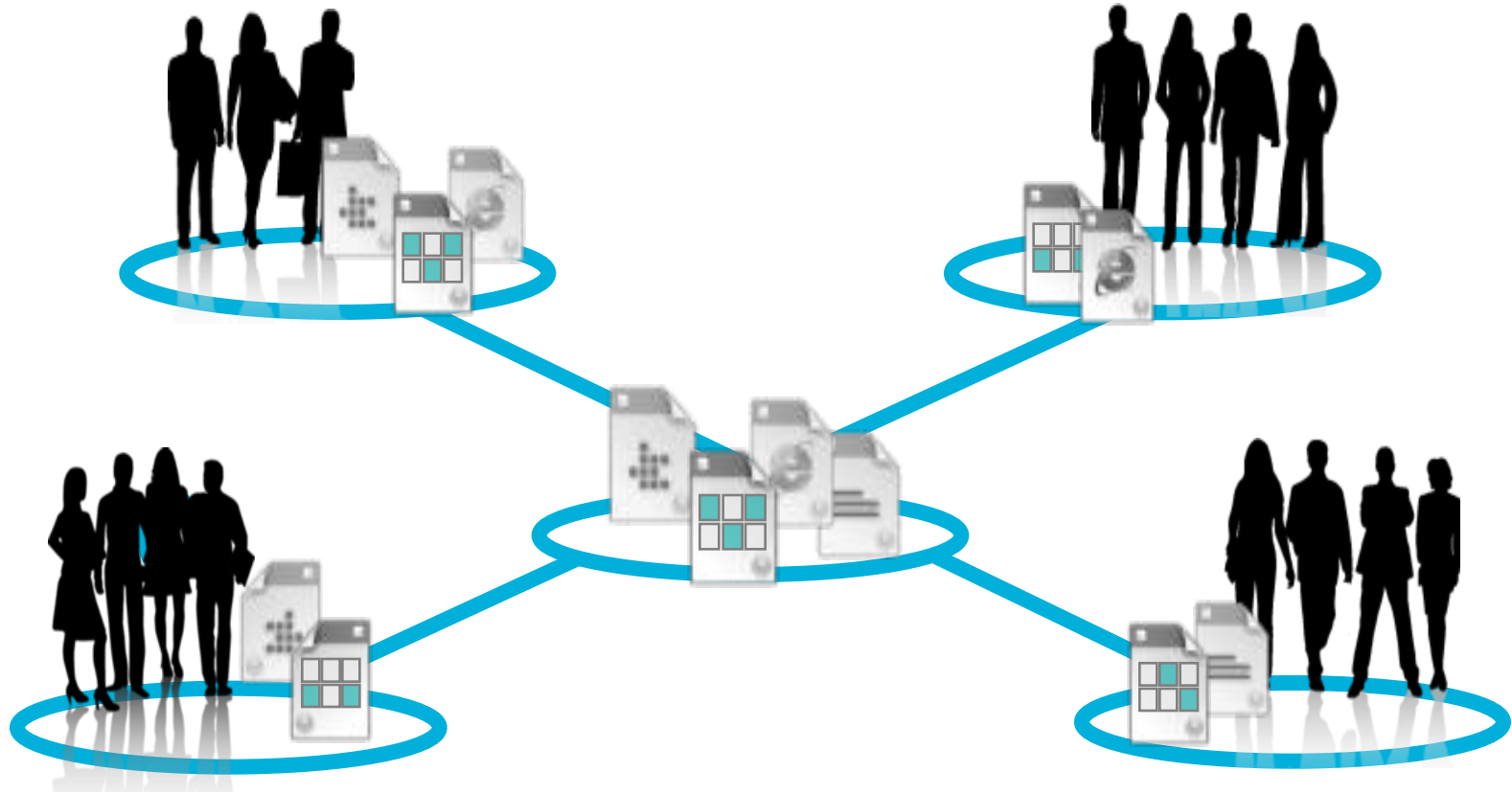


Imperative 2: Lifecycle Traceability

Instant access to details from any point in the development process

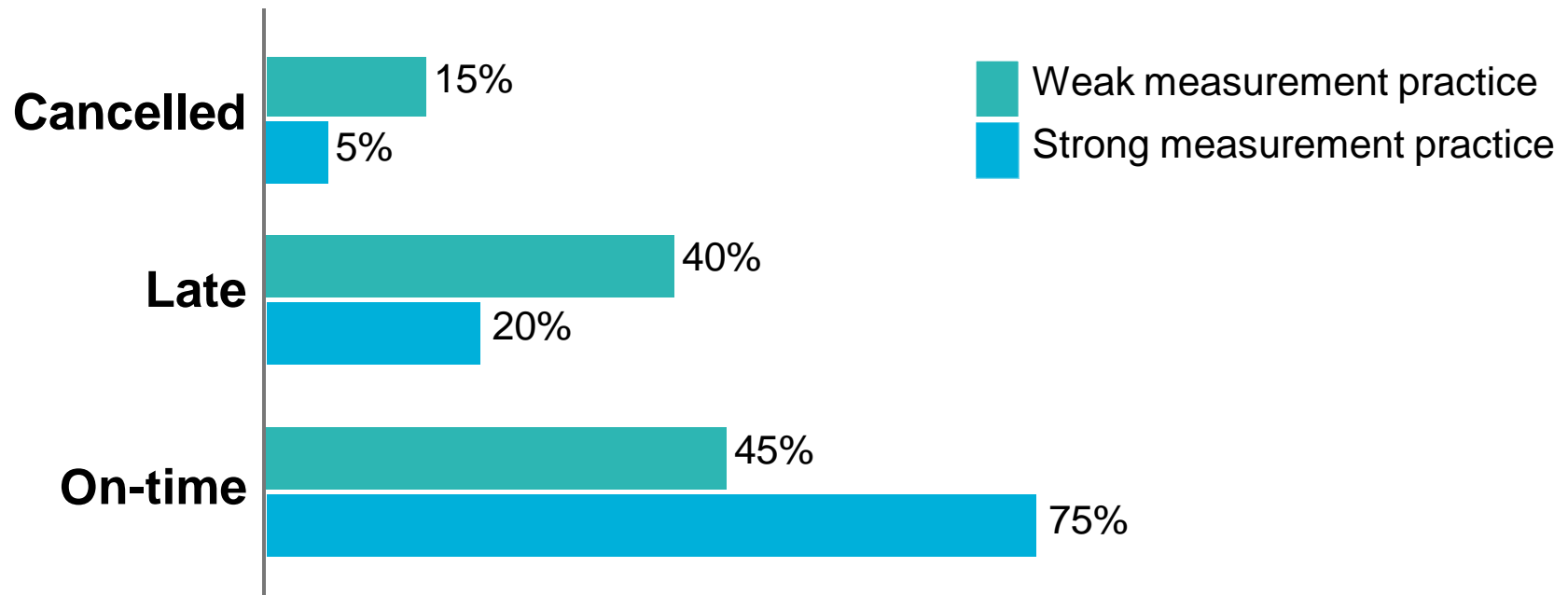


Imperative 3: In-Context Collaboration



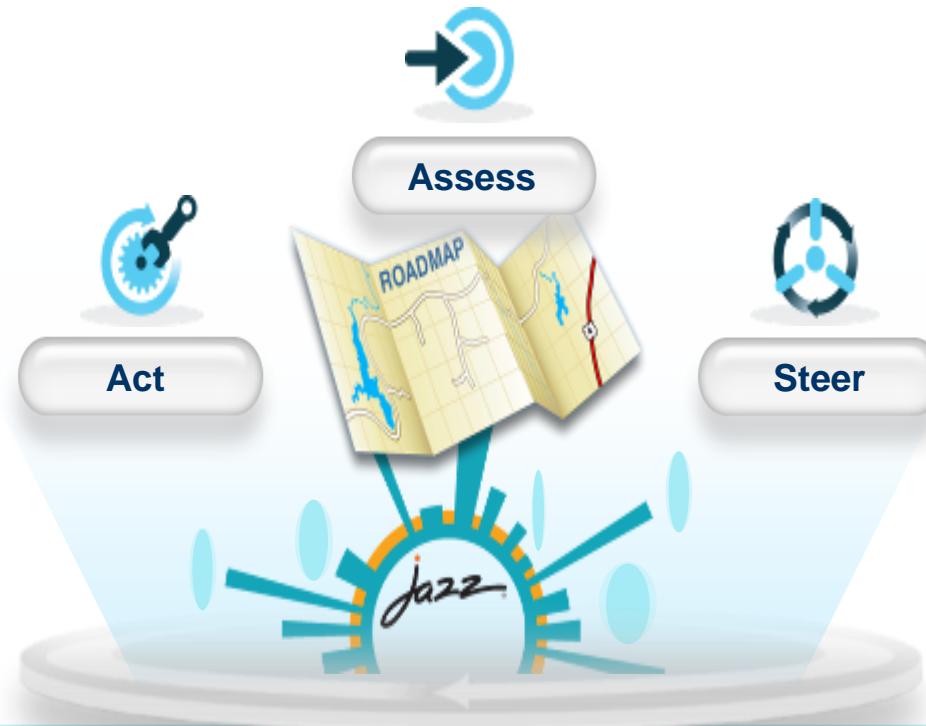
Imperative 4: Development Intelligence

Measurement Practices Impact Project Success



Source: Capers Jones, *Measurement, Metrics and Industry Leadership*, 2009 and *Software Engineering Best Practices*, McGraw Hill, 2010.

Imperative 5: Continuous Improvement



“Successful analytics requires taking it beyond software and reporting, and into the realm of management practices and operations improvement.”

Information Management Online, February 23, 2011

The Five Imperatives of Application Lifecycle Management

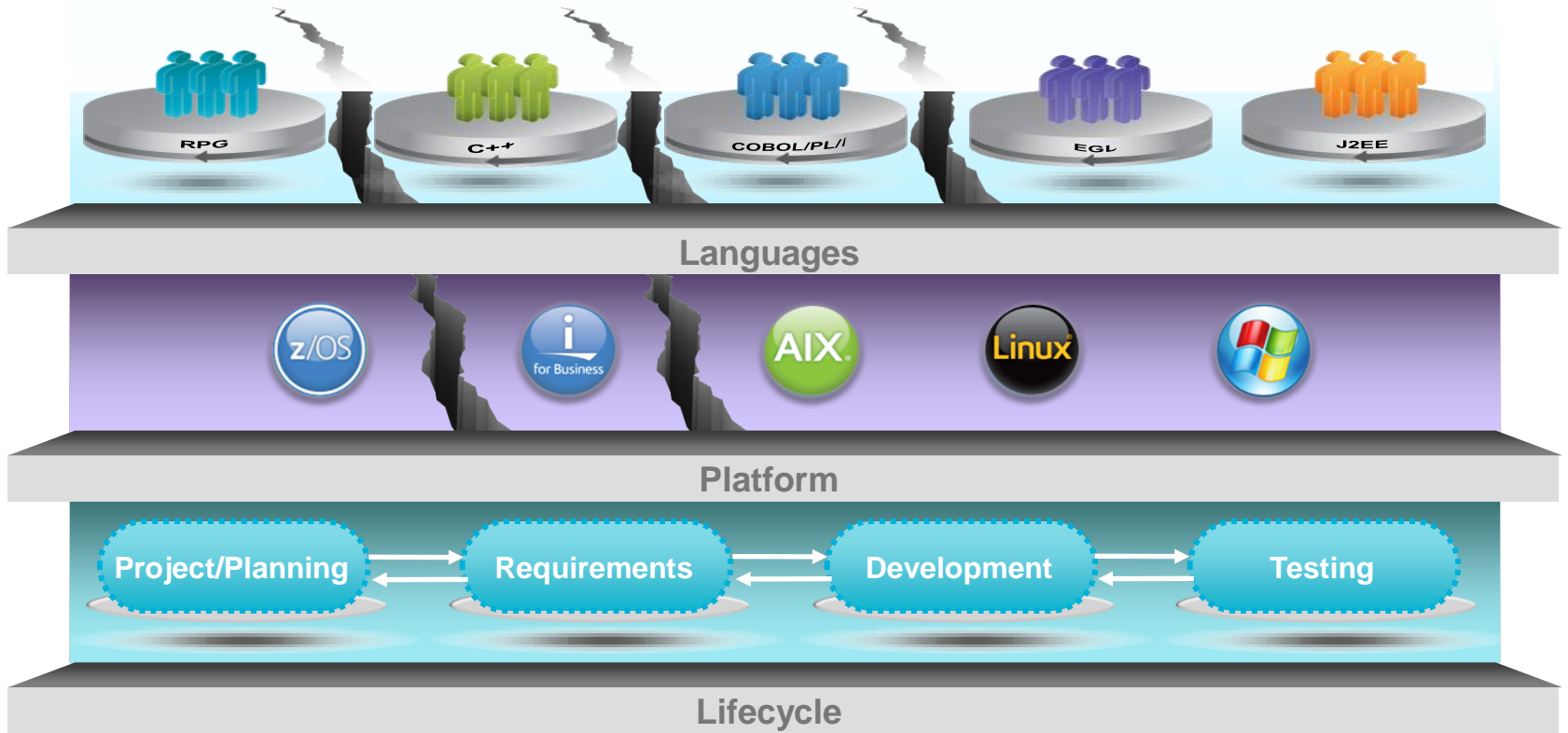
Improve productivity 4-6% annually

1. Accelerate **time to delivery** with real-time planning
2. Improve **quality** with lifecycle traceability
3. Maximize **time to value** with in-context collaboration
4. Refine **predictability** with development intelligence
5. Reduce **costs** with continuous improvement

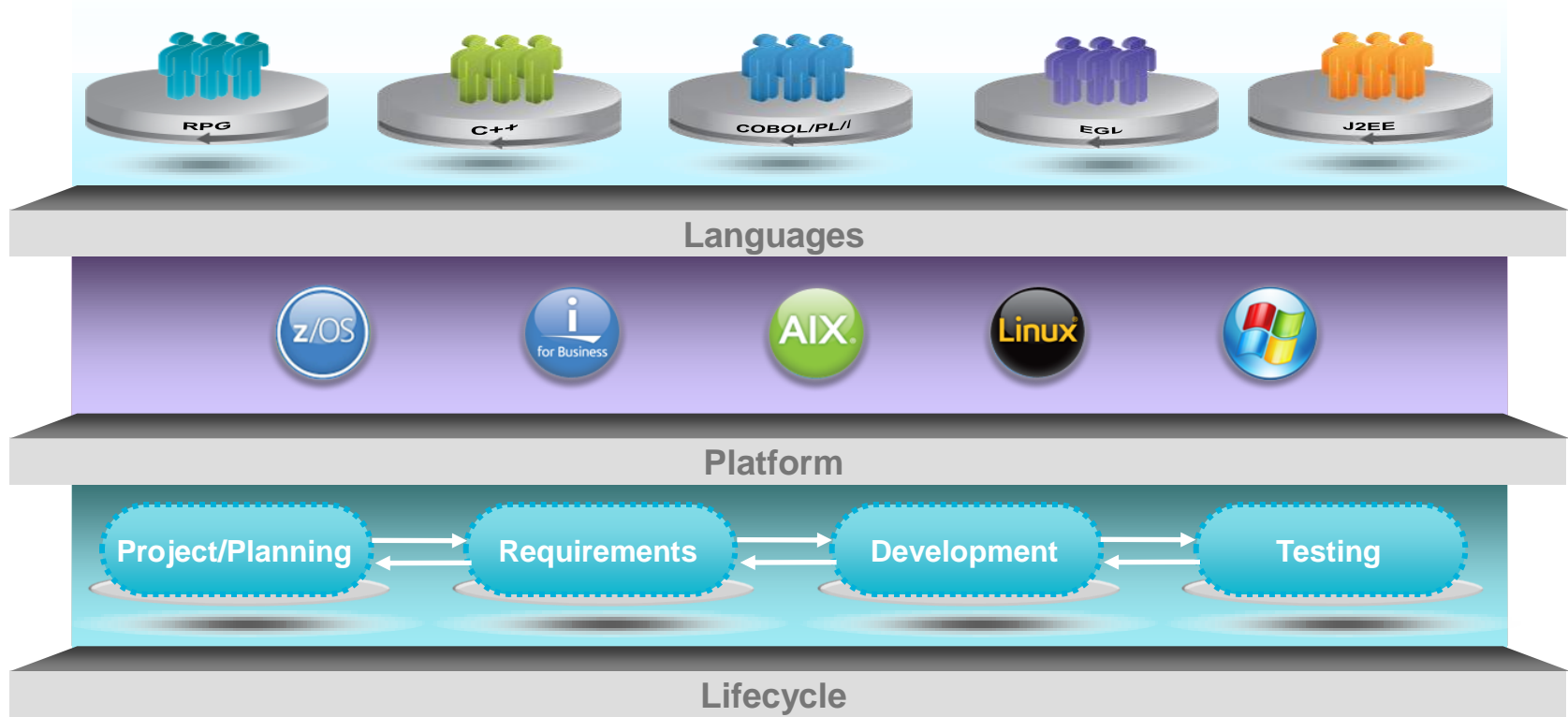
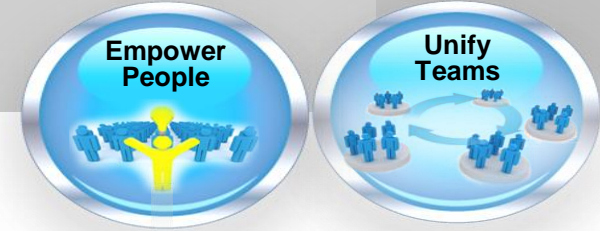




Disconnected Teams and Infrastructure



Integrated Teams and Infrastructure



- ✓ Common tool across all platforms and development teams
- ✓ Consistent planning and reporting of project status
- ✓ Supporting geographically dispersed development and test teams
- ✓ Repeatable build and test automation to encourage continuous integration

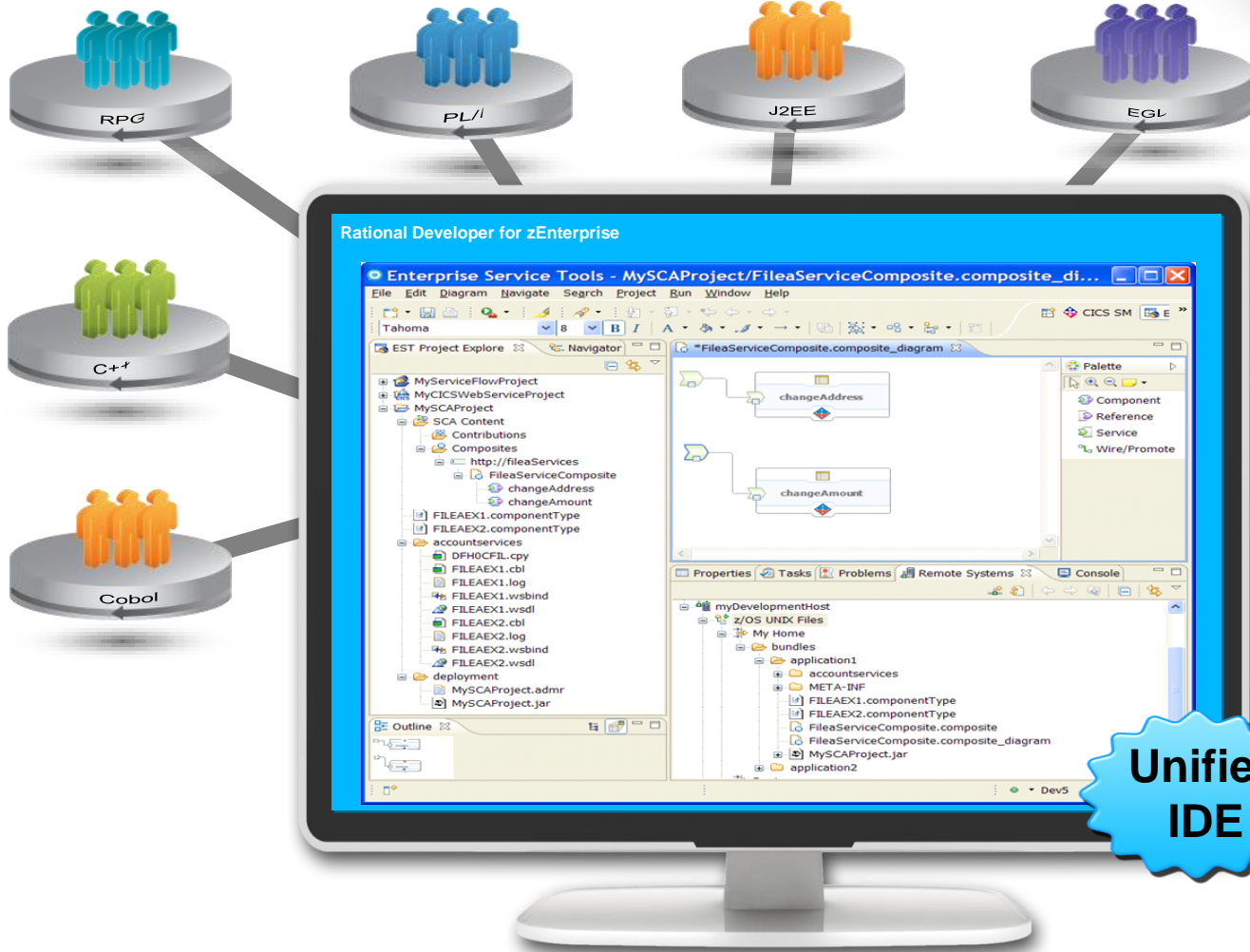


ISPF...Modern? Productive?

```
File Edit Edit_Settings Menu Utilities Compilers Test Help
EDIT
***** DDS0001.TEST.COBOL (BNCHS601) - 01.07 Columns 00001 00072
***** Top of Data *****
000001 IDENTIFICATION DIVISION.
000002 PROGRAM-ID. BNCHS601.
000003 AUTHOR. JON SAYLES.
000004 INSTALLATION. COBOL DEV Center.
000005 DATE-WRITTEN. 01/23/88.
000006 DATE-COMPILED. 01/23/88.
000007 SECURIY. CONFIDENTIAL PATIENT DATA.
000008
000009 *****
000010 *****
000011 *REMARKS.
000012 *
Command ==>
File Edit Edit_Settings Menu Utilities Compilers Test Help
VIEW
DDS0001.TEST.COBOL (BNCHS602) - 01.02 Columns 00001 00072
000256 100-MAINLINE.
000257 MOVE "100-MAINLINE" TO PARA-NAME.
x88858 * DISPLAY "100-MAINLINE".
000259 * Validate patient type and insurance coverage
000260 * PERFORM 300-FIELD-EDITS THRU 300-EXIT.
000261
000262
000263 IF RECORD-ERROR-FOUND
000264 ADD +1 TO RECORDS-IN-ERROR
000265 PERFORM 710-WRITE-TRMTERR THRU 710-EXIT
Command ==>
Mâ a 24/006
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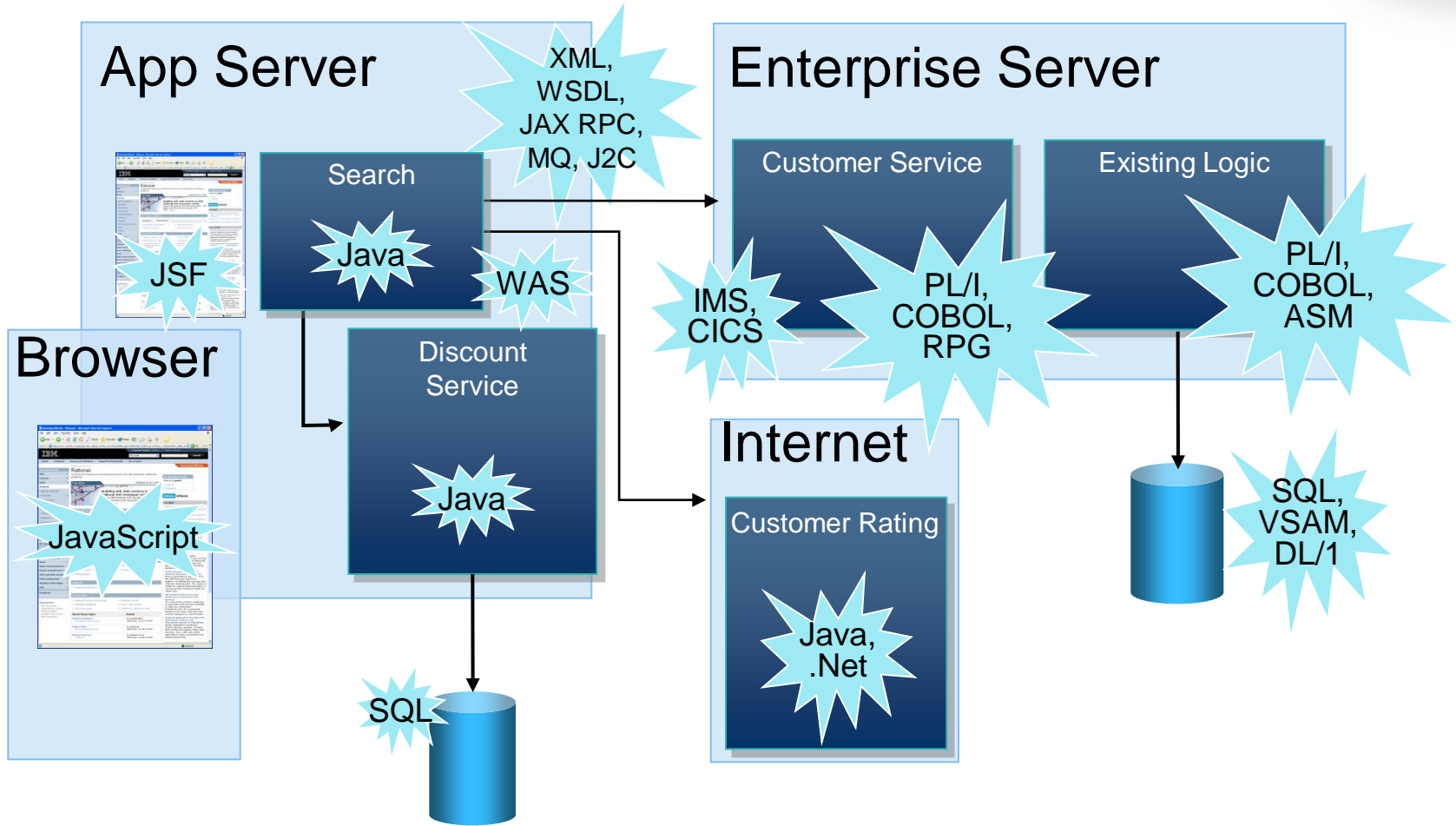

Modern and Productive!



- ✓ Consistent multi-platform, multi-language application development
- ✓ Remote, interactive debug of applications
- ✓ Enterprise service tools to generate application artifacts

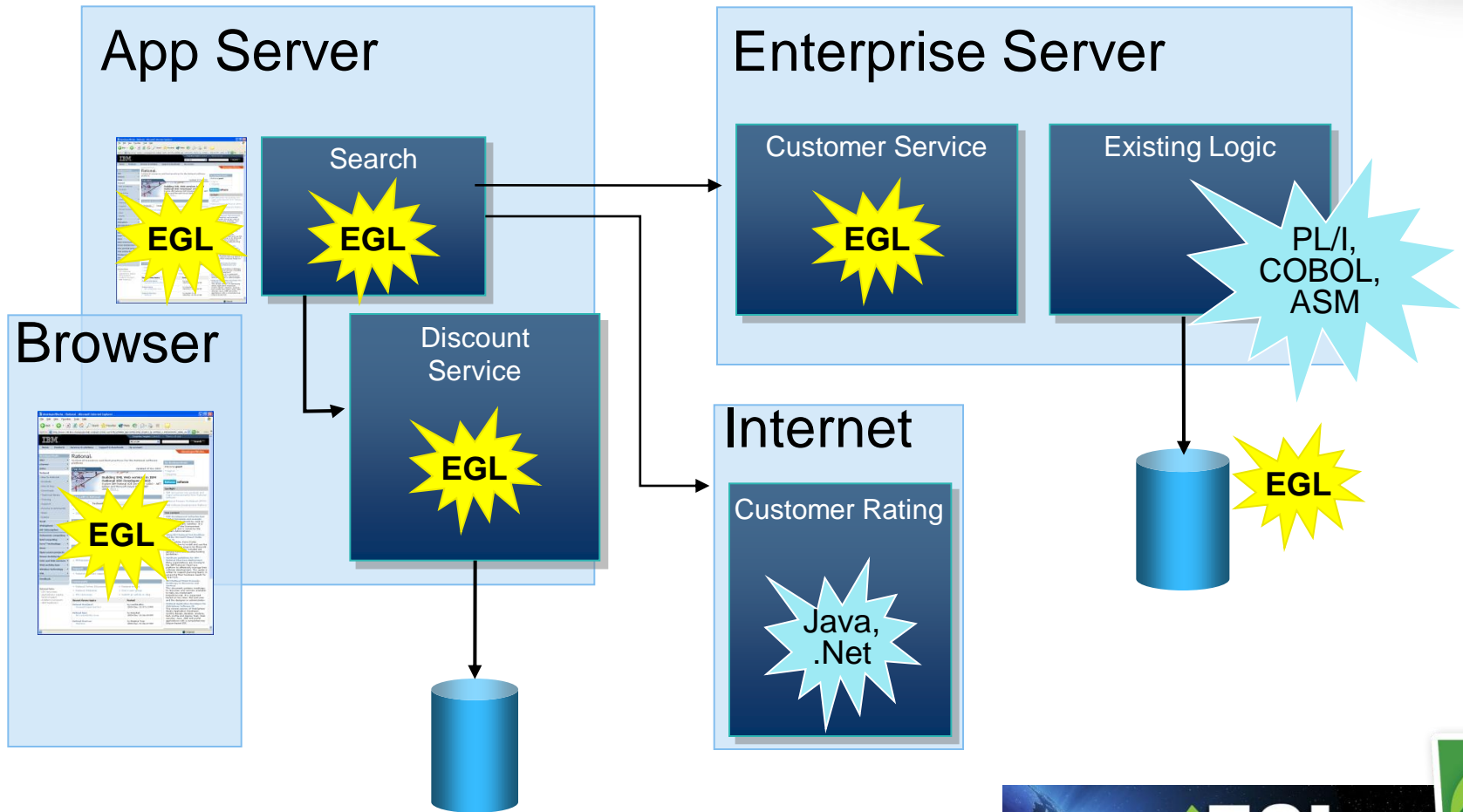


Middleware Complexities Exposed





Middleware Complexities Hidden

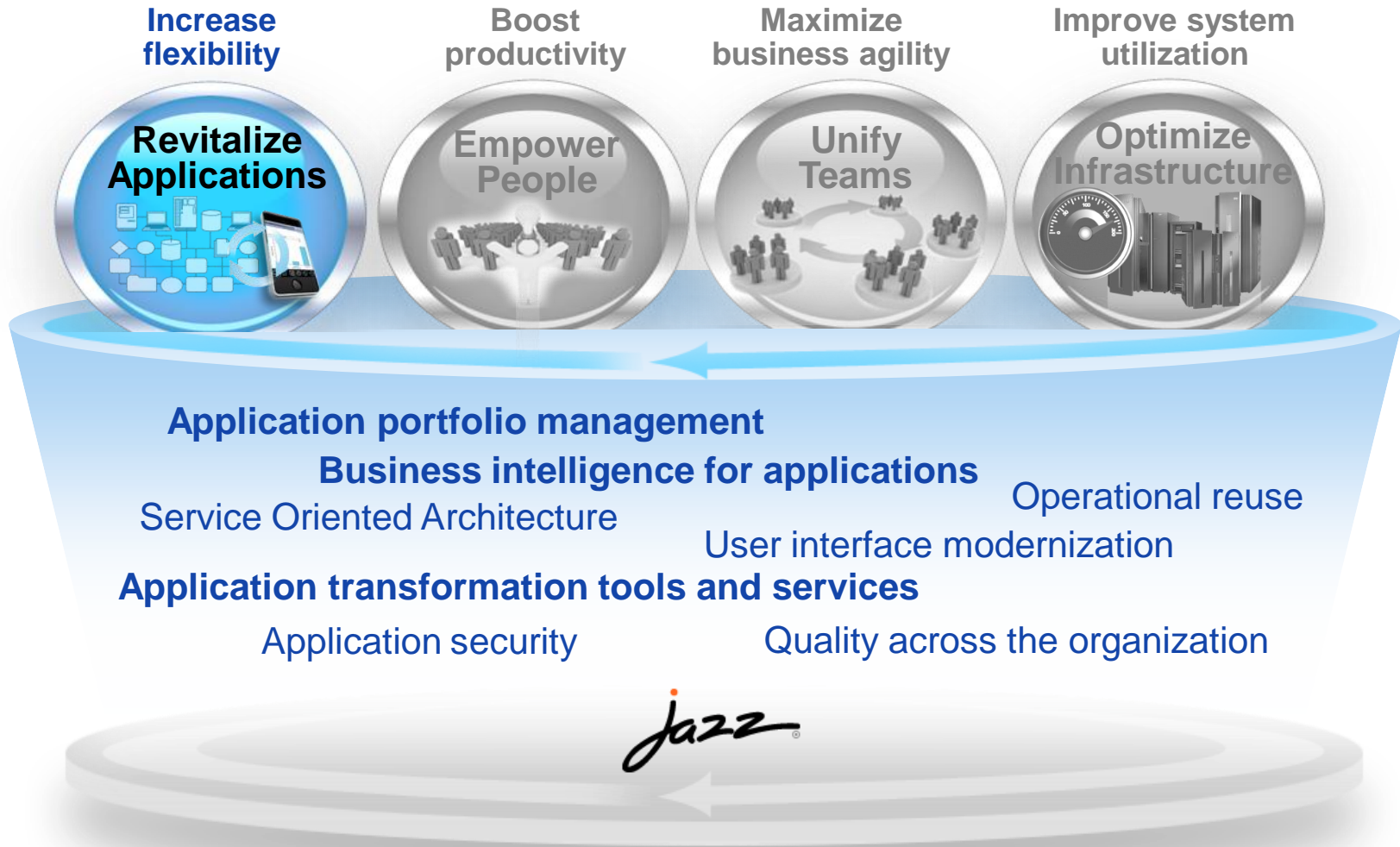


- ✓ Common development environment for all application aspects
- ✓ Language more closely matches business context
- ✓ Removes complexities of data transformation and communication
- ✓ Runs across multiple deployment architectures and runtimes



www.eclipse.org/edt

Increase flexibility by revitalizing existing application portfolios





Enterprises want to...

Align their application portfolio to the business' overall strategy

Increasing Business Pressures

Minimize costs for maintaining and operating existing systems

Enable new business opportunities through new and innovative systems

Minimize risk exposure (Compliance, Schedules, Security, ...)

Drive business process optimization through technology



Aging population possessing key domain, business and technology knowledge

Complexity driven by continued expansion of technology options

Duplicated and competing capabilities and technologies

Degrading maintainability as a result of aging technology and brittle architectures

Increasing IT Constraints

Insufficient Strategic Spend



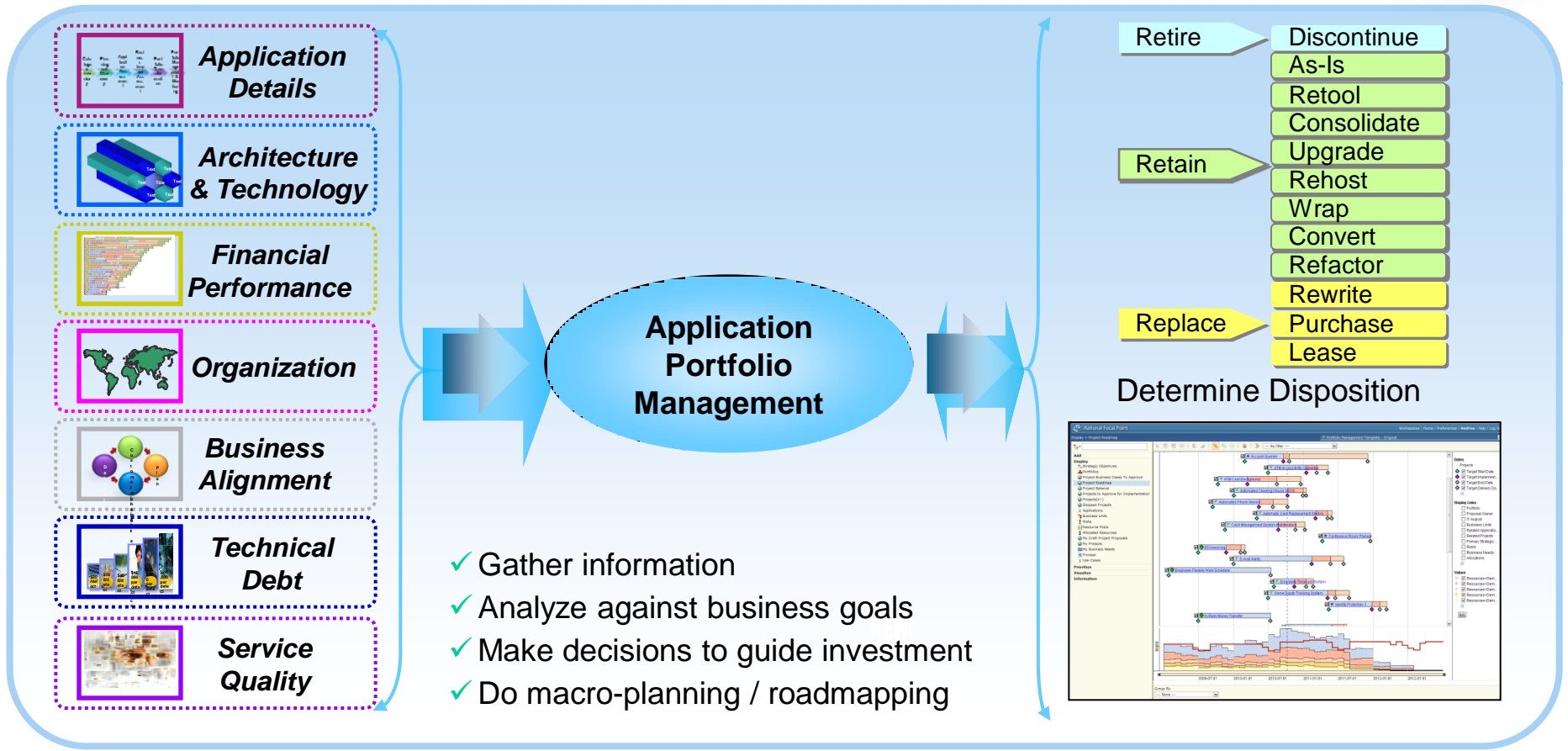
But...

Lack of business and IT information makes decision making ad-hoc, error prone and politically driven versus analytical and fact-based. Limited awareness of applications (usage, design, relationship to business requirements, etc.) increases cost, slows development delivery and reduces quality.



Solution: Comprehensive application portfolio management

Helps organizations proactively make faster and better-informed decisions



“Smarter APM and associated application revitalization has enabled IBM’s IT to cut maintenance costs by 20% and defects by 58%.”

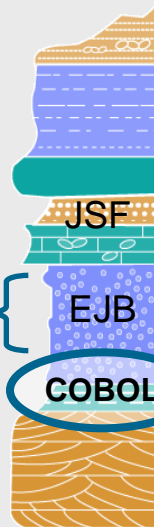


— IBM Corporation

Enterprises want to...

Understand the impact and cost of changes to their IT systems, harvest and manage business rules from existing applications, analyze these rules and minimize rework and points of failure

What is impacted if I change this COBOL copybook?



5 billion new COBOL LOC yearly

250 billion LOC of COBOL in existence

Approximately all active code is
80% COBOL

1 million COBOL programs currently active

But...

They have no business intelligence inventory of their application assets, relying instead on manual, error-prone processes and incomplete knowledge. They must compensate with more extensive planning and extra testing and by manually 'searching' for code affected by business decisions.



Solution: Business intelligence for applications

Restore lost application knowledge via technical analysis

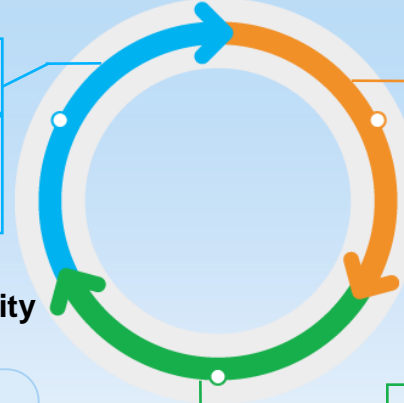
→ Improving maintenance quality

IDENTIFICATION
Rational Asset Analyzer

- What decisions
- Using which rules
- Where in the source

VALIDATION & MANAGEMENT
WebSphere® ILOG® BRMS

- Align rules with business goals
- Manage business rules life cycle
- Test and validate rules



→ Speeding up maintenance

REMEDATION
Rational Developer for System z®

- Adjust the source to match the rule
- Extract the rule to a callable element
- Extract the rule to a rule server

→ Increasing business agility

Application Artifacts

Mainframe

- COBOL
- PL/I
- DB2
- IMS/DC
- CICS
- Job Control Language
- High-level Assembler
- (HLASM)

Distributed

- Java
- WebSphere
- HTML
- Enterprise Archive (EAR)
- WSDL
- Web Archive (WAR)
- C++

- ✓ Reduce risk by quickly assessing change impacts
- ✓ Lower cost by eliminating dead code
- ✓ Optimize planning, focusing testing and speeding development
- ✓ Accurately harvest and re-use business rules from existing applications

“IBM Rational Asset Analyzer software is a robust and reliable tool that supports portfolio analysis of large applications in a short period of time, delivering accurate reports that give a clear understanding of the application at the business, architecture and program levels.”

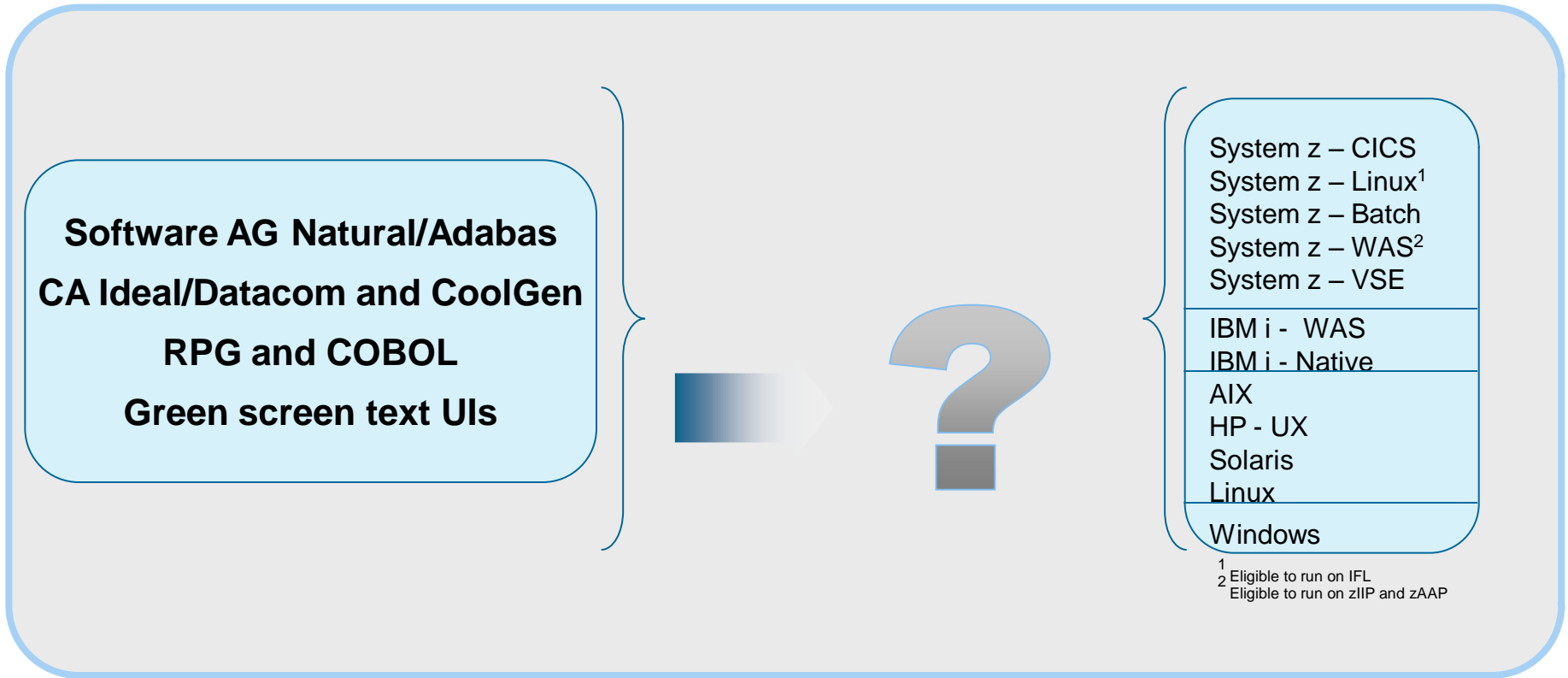
— Sihab Kolaparambil, practice manager, Wipro IT Business





Enterprises want to...

Reduce tool support costs and move to modern platforms, languages, and tools for their multiplatform application development



But...

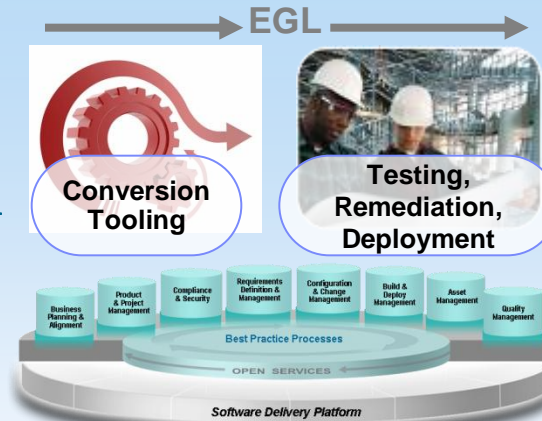
They are using older languages and/or are stuck on poorly supported, expensive, legacy development platforms



Solution: Application transformation tools and services

Migrate from older languages and expensive tools to modern development platforms, languages, databases and tools

Software AG Natural/Adabas
CA Ideal/Datacom and CoolGen
RPG and COBOL
Green screen text UIs



System z – CICS
 System z – Linux¹
 System z – Batch
 System z – WAS²
 System z – VSE

IBM i - WAS
 IBM i - Native

AIX
 HP - UX
 Solaris
 Linux

Windows

¹ Eligible to run on IFL
² Eligible to run on zIIP and zAAP

- ✓ Greatly reduced development platform support costs
- ✓ More flexible, integrated development environment

Operating costs were reduced 55 percent by migrating from the VAGen legacy application to Java. “The migration to EGL combines the best of both worlds: The stability of IBM System z and the flexibility of Java.” Massive cost savings are also included!

— Frank Landewee, project manager, Atos Origin GmbH, Essen



Improve application performance by exploiting latest hardware





Solution: Advanced compiler technology

Exploit new advanced optimization technology in C/C++, Java, COBOL, PL/I and Fortran compilers



Performance

Compiler Version

Same hardware + **NEW** compiler
= **Increased** Performance

NEW hardware + **NEW** compiler
= **Maximum** Performance

- z/OS XL C/C++ v1.12 on zEnterprise* delivers up to 60% performance improvement
- Enterprise PL/I V4.1 on zEnterprise* delivers up to 27% performance improvement
- XL C/C++ v11, XL Fortran v13 delivers *industry leading* SPEC® CPU2006 performance*

✓ Lowers capital outlays by increasing capacity and improving performance of application suite

... the Metal C optimization levels are just incredible. We're really impressed, there is no way that any of us assembler programmers can write code as efficient and keep it readable and do it in a reasonable amount of time.."

— Gregg Willhoit is the Chief Architect at DataDirect Technologies

PROGRESS
SOFTWARE

Enterprises want to...

Reduce application development MIPs usage and increase development autonomy

Application Development



Operations



Cost

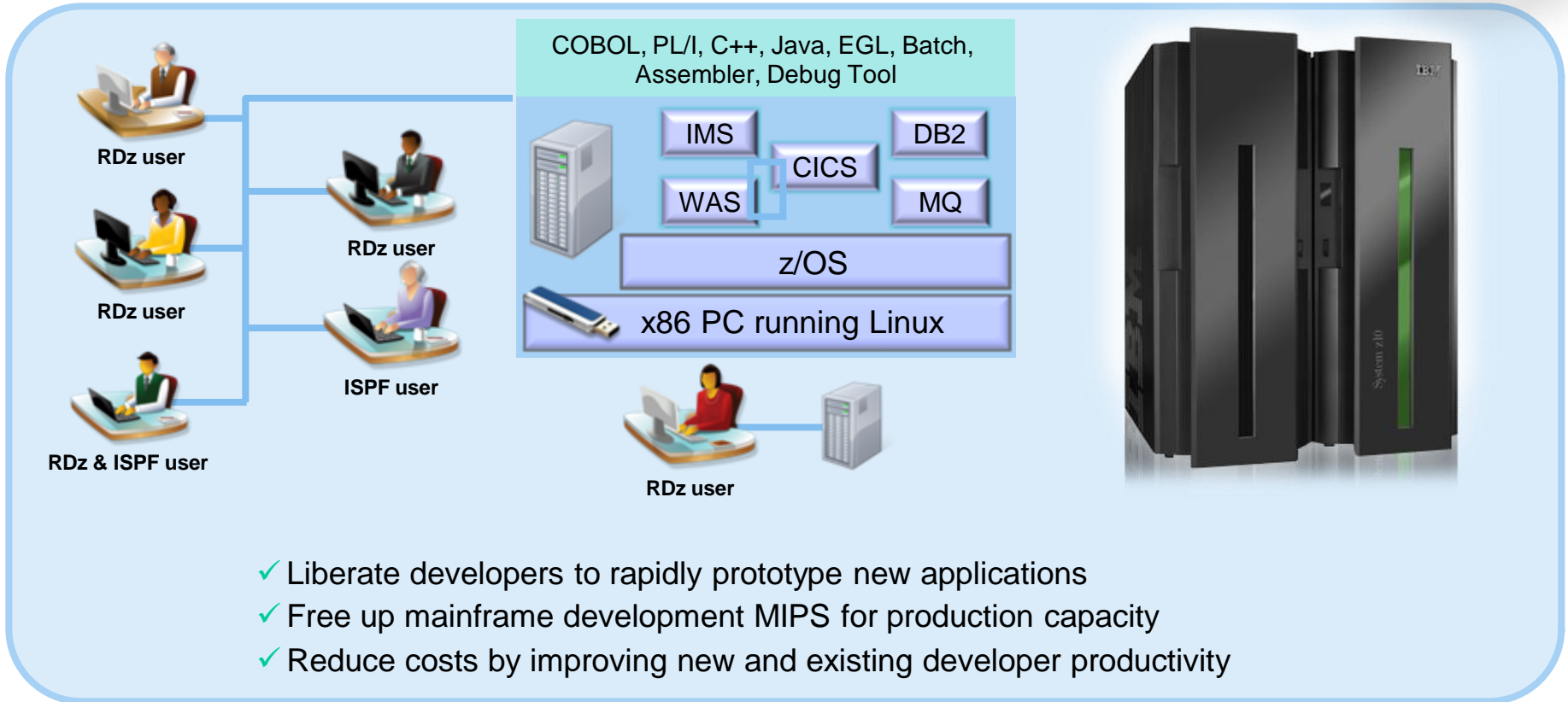


But...

Testing requires System z MIPs and negotiation for time with the production team



Solution: Test mainframe applications on x86 Linux server



- ✓ Liberate developers to rapidly prototype new applications
- ✓ Free up mainframe development MIPS for production capacity
- ✓ Reduce costs by improving new and existing developer productivity

“RDz Unit Test gives our developers the ability to have their own z/OS environment to prototype, compile, debug and test while our customers make the necessary changes to their test, QA and production environments... This shortens our time to delivery, shortens our project cycles, makes our customers happy and increases our margins...At the price... it’s a no brainer.”

— Eric Simone, CEO, ClearBlade



Note: This Program is licensed only for development and test of applications that run on IBM z/OS. The Program may not be used to run production workloads of any kind, nor more robust development workloads including without limitation production module builds, pre-production testing, stress testing, or performance testing.

Getting started

Next steps to modernize your enterprise applications



To learn more visit: ibm.com/software/rational/announce/modernization/



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QUESTIONS

The word 'QUESTIONS' is rendered in large, white, 3D-style letters. Each letter contains a different photograph of a diverse group of business professionals, including men and women of various ethnicities, smiling or engaged in work.

www.ibm.com/software/rational



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