



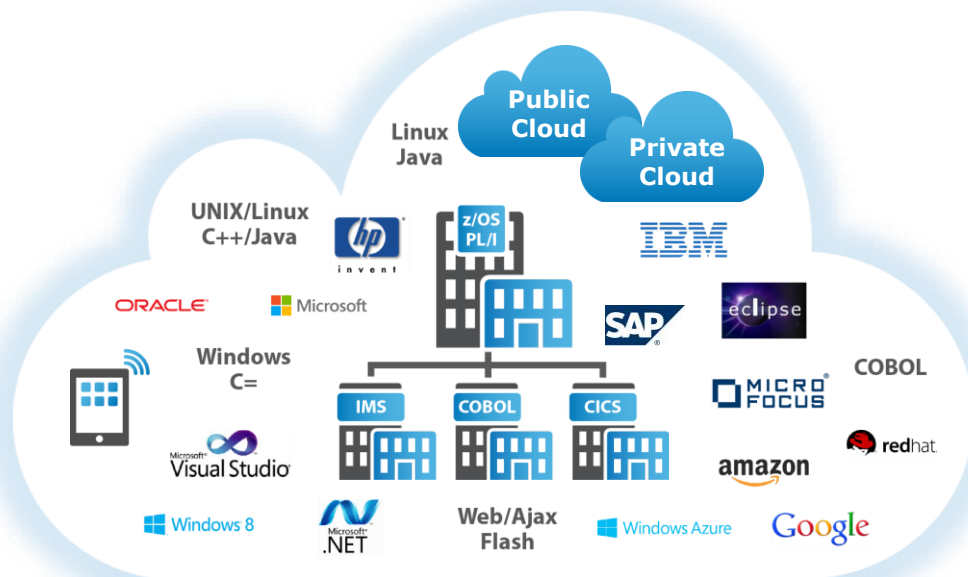
The next 50 years of value: Micro Focus COBOL & the IBM Mainframe

Ed Airey & Derek Britton

Micro Focus

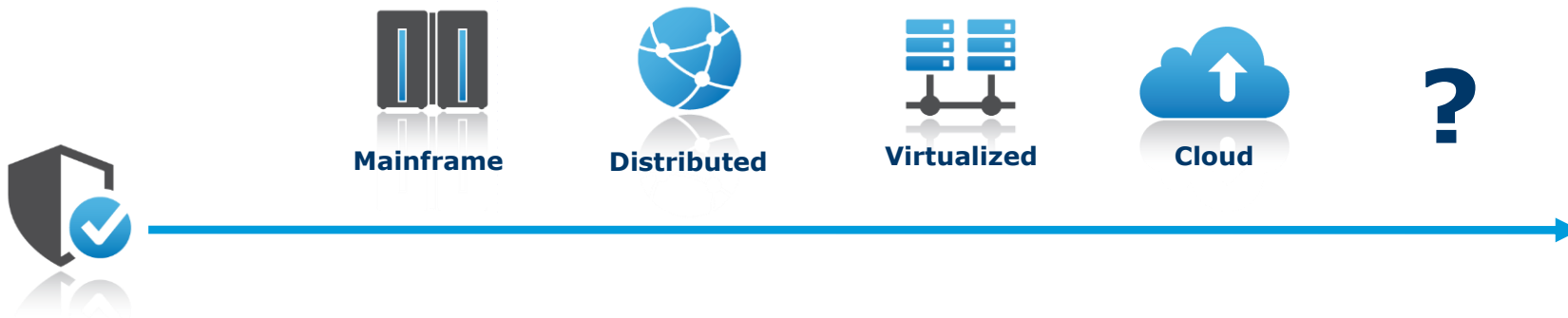
As an IT leader in the digital age, the mandate couldn't be simpler – deliver more value, faster.

Exploring smart ways in z13 to deliver ever more value, quickly




40+ years of innovation has delivered incredible returns but at the cost of huge levels of complexity


Micro Focus' portability delivers future investment savings



- COBOL applications written yesterday run on today's modern platforms
- COBOL applications written today will run on tomorrow's leading platforms
- COBOL is already part of the next generation of platforms
- Micro Focus is investing today so that business applications can support your business for the coming generations



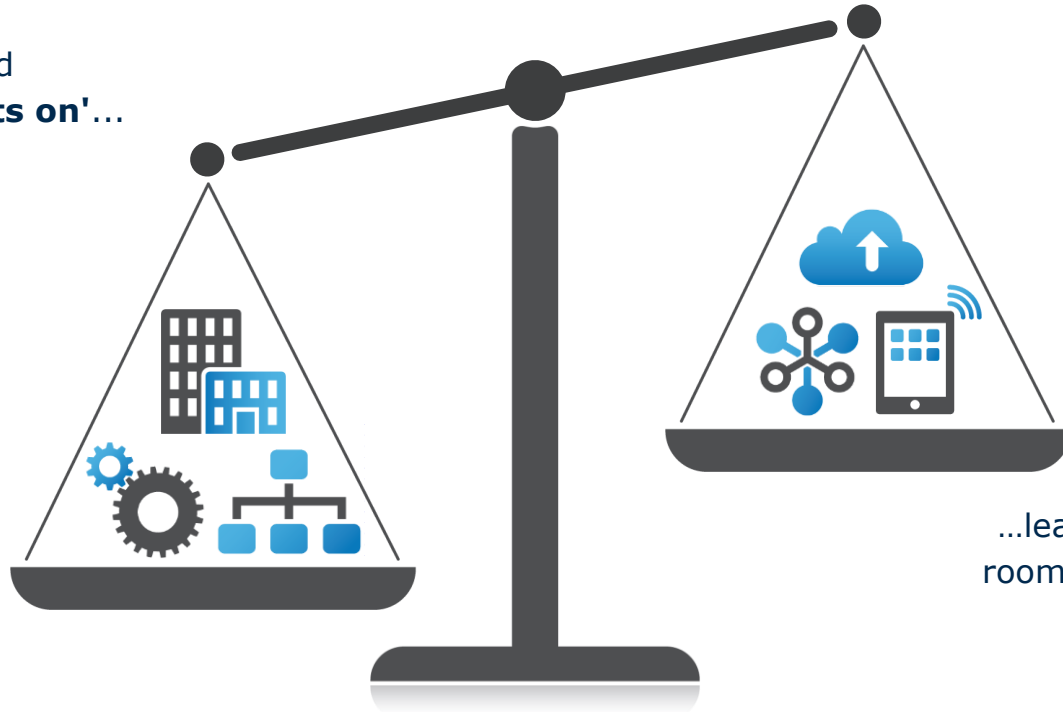
Micro Focus bridges the old
and the new, enabling customers
to unlock the value in their core
business applications



Bridging the old and the new in the enterprise

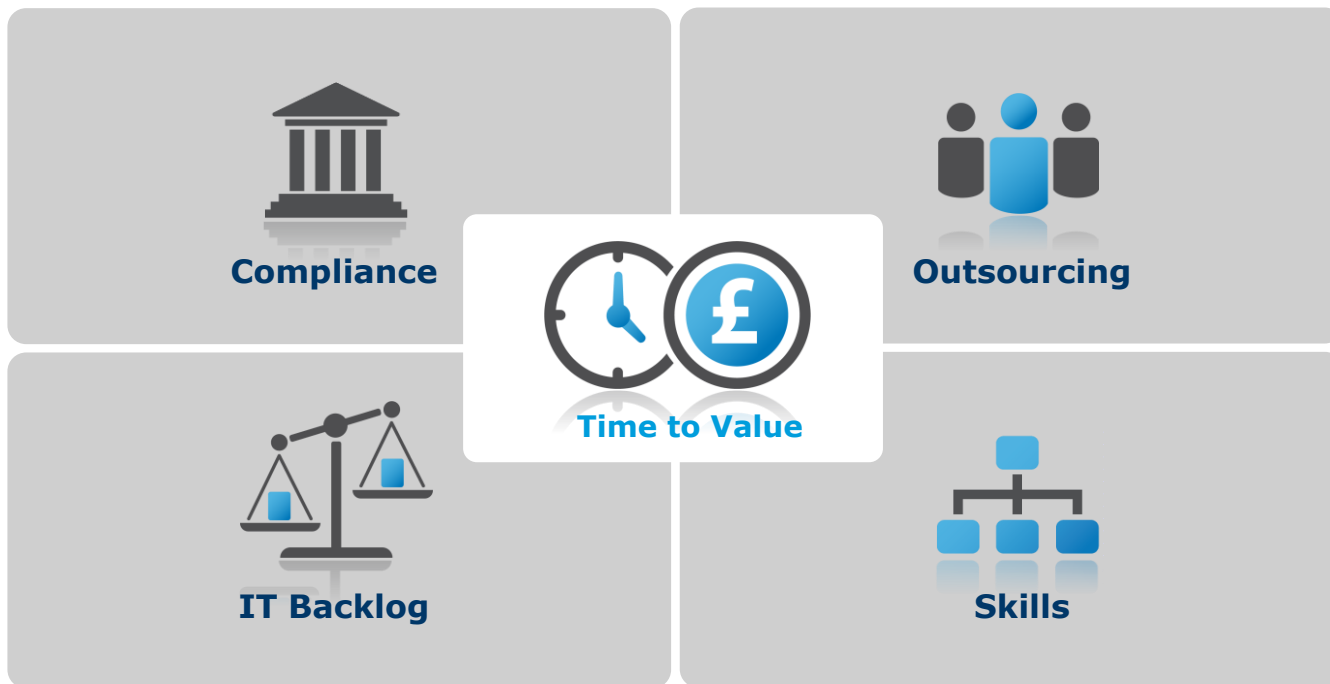
The barriers to change

Majority of IT spend
'keeping the lights on'...



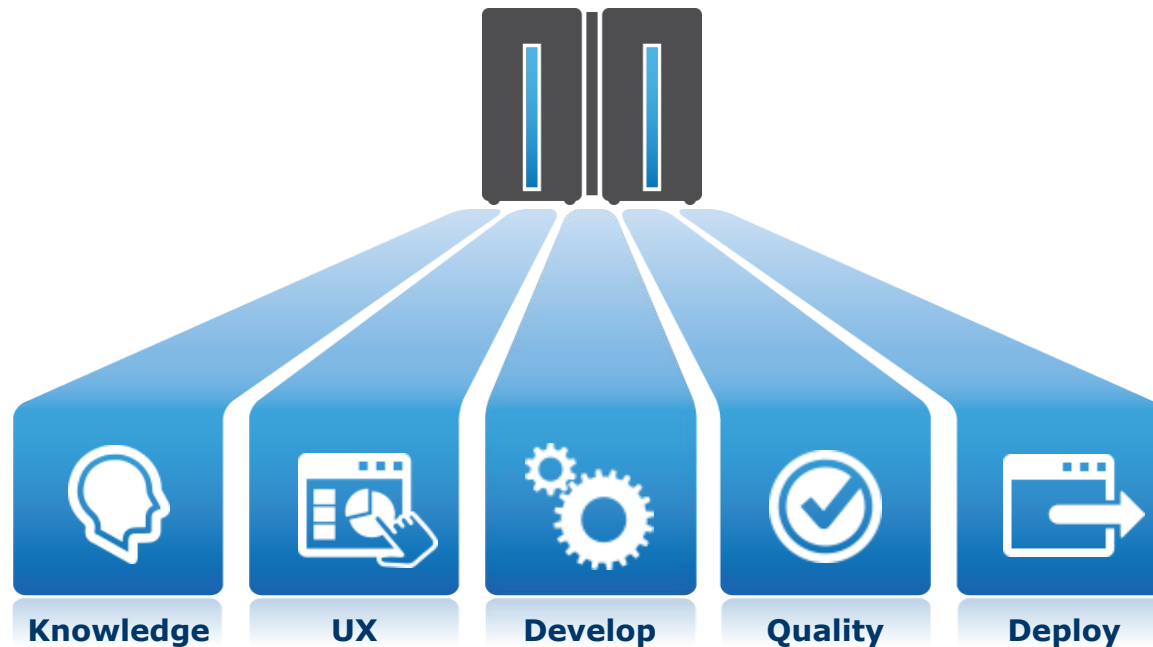
...leaving insufficient
room for **innovation**

Time to Value – Driving Critical IT Projects



Accelerating Time to Value in the Enterprise

Streamlining the enterprise IT journey to deliver more value, faster





Knowledge

Enterprise-wide insight to support superior IT decision making



Insight

Manage drivers for change,
Establish expertise to
de-risk IT strategy, reduce
redundancy and IT budgets



Understanding

Review technical,
operational and business
impacts based on the only
source of application truth
– the applications
themselves



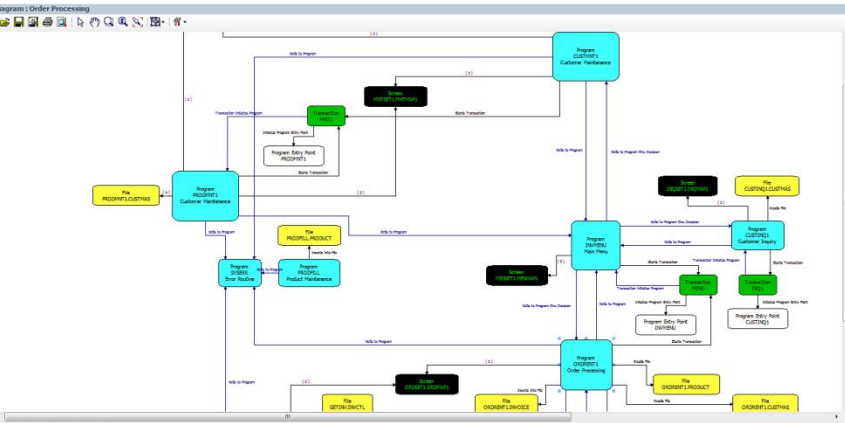
Acceleration

Provide knowledge at
the point of change
for application
developers



Knowledge

Knowledge at the point of change for fast results



Reviewer

- ABC Corporation
 - Classes
 - Java Apps
 - Order Processing
 - ENE File
 - Global File
 - Copybook File
 - JCL File
 - JCL Procedure
 - Job
 - Logical Component
 - PCT File
 - Program
 - Screen
 - Transaction

Relationships - 84 items(s)

- PROGRAM ORDRENT1
- PROGRAM ORDRENT1
- TRANSACTION INQ1
- TRANSACTION INRT1
- TRANSACTION MENU
- TRANSACTION ORDL
- PROGRAM CUSTINQ1
- PROGRAM CUSTINRT1
- PROGRAM ORDRENT1
- PROGRAM ORDRENT1
- PROGRAM ORDRENT1
- PROGRAM ORDRENT1
- PROGRAM ORDRENT1
- PROGRAM ORDRENT1
- PROGRAM PROCDWT1
- PROGRAM PROCDWT1

Overview

HyperView - ABC Corporation (Order Entry) - ORDRENT1.ccp

File Edit Source Flowchart Context View Help

Context: Scope: (All) Source: File: ORDRENT1.CCP

```

0000-ENTER-ORDERS
  MOVE DFHCOMMAREA TO COMMUNICATION-AREA
  EVALUATE TRUE
  TRUE
  WHEN EIBCALEN = ZERO
  WHEN EIBAID = DFHCLEAR
  WHEN EIBAID = DFHPA1 OR DFHPA2 OR DFHPA3
  WHEN EIBAID = DFHPF3
  WHEN EIBAID = DFHPF12
  WHEN EIBAID = DFHENTER
  WHEN EIBAID = DFHENTER
  EIBAID = DFHENTER
  IF PROCESS-ENTRY
  IF PROCESS-ENTRY
  THEN
  ELSE
  WHEN EIBAID = DFHPF4
  PI CF
  
```

Flowchart

Source View - ORDRENT1 (Program)

Source: ORDRENT1.CCP

```

*11538 *
MOVE -1 TO ORD-L-CUSTNO
MOVE 'That customer does not exist'
TO ORD-D-MESSAGE
MOVE 'M' TO VALID-DATA-SW.
IF VALID-DATA
MOVE -1 TO ORD-L-CUSTNO.
*210-READ-CUSTOMER-RECORD.
EXEC CICS
  READ DATASET ('CUSTMAS')
  INTO (CUSTOMER-MASTER-RECORD)
  RIDFLD(ORD-D-CUSTNO)
  RESP (RESPONSE-CODE)
END-EXEC.
IF RESPONSE-CODE = DFHRESP(NORMAL)
MOVE 'Y' TO CUSTOMER-FOUND-SW
  
```

Context

- IDENTIFICATION DIVISION
- ENVIRONMENT DIVISION
- DATA DIVISION
- PROCEDURE DIVISION
- ORDRENT1
 - RETURN-CODE
 - 0000-ENTER-ORDERS
 - 0000-PROCESS-ORDER-MAP
 - 1000-RECEIVE-ORDER-MAP
 - 2000-GET-CORDER-DATA
 - 210-READ-CUSTOMER-RECORD
 - 220-EDIT-LINE-ITEM
 - 230-HEAD-PRODUCT-RECORD
 - 1300-FORMAT-INVOICE-RECORD
 - 1400-SEND-ORDER-MAP
 - 1400-SET-ATTRIBUTES
 - 1400-RESET-ATTRIBUTES



User Experience

Rapid, simple business application modernization



Mobility

Core applications are now available through web, desktop and mobile interfaces



Efficiency

Modernizing core applications without having to change the underlying application accelerates business improvement; modern controls provide a more intuitive, efficient interface for users and customers



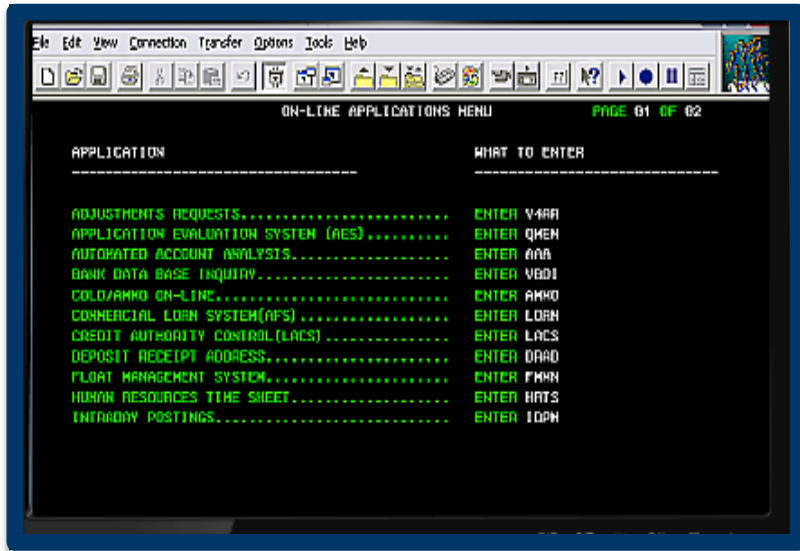
Simplicity

Complex multiple screens can be sanitized into simpler interfaces to reduce the complexity, time and risk of error for end users



User Experience

Rapid modernization for dramatic business results



10:12:13 10:12:13 10:12:13 10:12:13 10:12:13



Develop

Best in class, efficient z Systems development



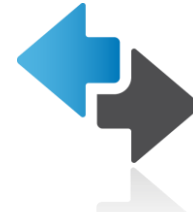
Streamline

Remove infrastructure limitations and unnecessary mainframe reliance



Accelerate

Maximise developer efficiency and improving delivery times by up to 40%



Extend

Introduce flexibility across the development life-cycle and enhance the resource pool



Develop

Streamline – removing barriers to efficiency

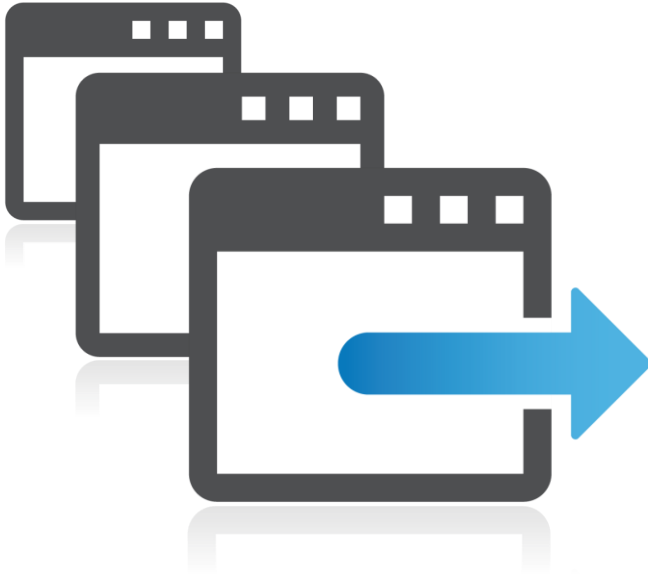


- Accelerated delivery time by providing access to contemporary development environment
- Maximize developer efficiency by reducing mainframe resource contention and wait time
- Rejuvenate the skill pool through adoption of industry standard technology
- Switch between connected or offload mode to get the best blend of instant change and reduced mainframe dependency



Develop

Accelerate – improve delivery times and maximize efficiency



- Instantaneous application change with zero wait time and no resource conflict
- Advanced editing and debug technology for fast error detection and resolution
- Remove barriers to unit testing to improve code quality



Develop

Expand – flexibility across the development life-cycle

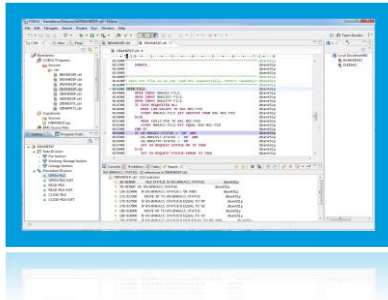


- Quickly integrate mainframe tools and process to improve developer adoption
- Unification of best of breed development tools and deep integration to configuration management
- Industry standard IDEs foster development team collaboration
- A single development technology regardless of application strategy

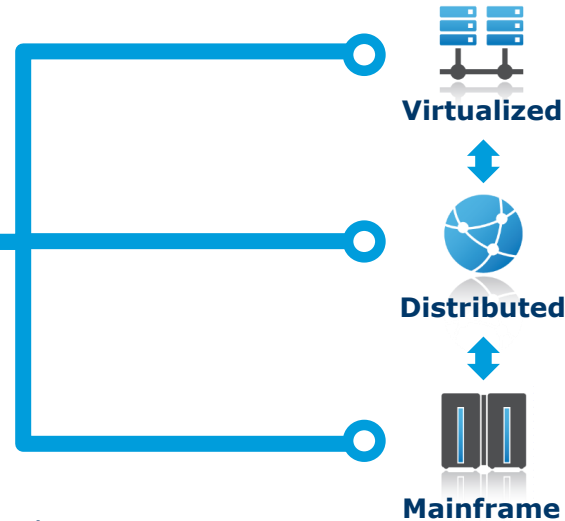


Develop

Optimal efficiency and flexibility for enterprise development



- **Unified** – Standardized IDE technology provides highly productive environment for enterprise developers



- **Future-proofed** – today's core applications have a robust and flexible future path
- **Flexible** – enables instant mainframe connection or fully detached, distributed set up



Develop – z/OS from Eclipse

Team Developer - Bankdemo/Sources/cbl/ZBNKEXT1.cbl - Eclipse

File Edit Navigate Search Project Run Window Help

Team Devel Server Expl Navigator

ZBNKEXT1.cbl

```

042100 .....1-B.....2.....3.....4.....5.....6.....7-I.....8
042200 .....
042300 ..... *
042400 .....
042500 SOURCE1-CLOSE.
042600 MOVE SPACES TO WS-COMMAREA.
042700 MOVE WS-EXEC-PARM-DATA TO CDS1I-PID.
042800 SET IO-REQUEST-FUNCTION-CLOSE TO TRUE.
042900 CALL 'DBANKS1P' USING WS-COMMAREA.
043000 IF IO-REQUEST-STATUS-ERROR
043100 MOVE 'SOURCE1 (Customer details) Error closing file ...'
043200 TO WS-CONSOLE-MESSAGE
043300 PERFORM DISPLAY-CONSOLE-MESSAGE
043400 PERFORM ABORT-PROGRAM
043500 END-IF.
043600 SOURCE2-CLOSE.
043700 MOVE SPACES TO WS-COMMAREA.
043800 MOVE WS-EXEC-PARM-DATA TO CDS2I-PID.
043900 SET IO-REQUEST-FUNCTION-CLOSE TO TRUE.
044000 CALL 'DBANKS2P' USING WS-COMMAREA.
044100 IF IO-REQUEST-STATUS-ERROR
044200 MOVE 'SOURCE2 (Transactions) Error closing file ...'
044300 TO WS-CONSOLE-MESSAGE
044400 PERFORM DISPLAY-CONSOLE-MESSAGE
044500 PERFORM ABORT-PROGRAM
044600 END-IF.
044700 .....

```

Remote Systems

Local

- 10.24.11.231
- JES Explorer
- My Jobs
- MVS Explorer
- My Filter
- MAS
- MOSCB
- MERANT
- MFA3
- MFI
- MFIAAC
- MFIAAO
- MFIACF
- MFIADRH
- MFIAYE
- MFIAY
- MFIAYG
- MFIAYN
- MFIAYF
- MFIAYS
- MFIAYK
- MFIAYD
- MFIAYLEX
- MFIAYL
- MFIAYL4

Tasks Problems Team Developer Table View Team Developer Error List Team Developer Job View Console File Mappings Remote System Details

note system filter My Jobs

Resource	Name	Job ID	Owner	Phase	Type	Class	Priority	Position	CC	CC Info
CSJY1S - JOB04436	CSJY1S	JOB04436		Job is on t...	Batch job ...	A	1	573 0		JOB ENDE...
BURCLAR - JOB04433	BURCLAR	JOB04433		Job is on t...	Batch job ...	1	1	572 0		JOB ENDE...
INCD09 - JOB04432	INCD09	JOB04432		Job is on t...	Batch job ...	A	1	571 12		JOB ENDE...
BURCLAR - JOB04431	BURCLAR	JOB04431		Job is on t...	Batch job ...	1	1	570 0		JOB ENDE...
BURSAMR - JOB04429	BURSAMR	JOB04429		Job is on t...	Batch job ...	1	1	569 0		JOB ENDE...
CSID1R - JOB04425	CSID1R	JOB04425		Job is on t...	Batch job ...	A	1	568 0		JOB ENDE...
CSID1R - JOB04424	CSID1R	JOB04424		Job is on t...	Batch job ...	A	1	567 0		JOB ENDE...
CSID1R - JOB04423	CSID1R	JOB04423		Job is on t...	Batch job ...	A	1	566 0		JOB ENDE...
CSID1R - JOB04422	CSID1R	JOB04422		Job is on t...	Batch job ...	A	1	565 8		JOB ENDE...
CSID1A - JOB04421	CSID1A	JOB04421		Job is on t...	Batch job ...	A	1	564 0		JOB ENDE...

Properties

ZBNKEXT1

- Data Division
- Procedure Division
- SOURCE1-OPEN
- SOURCE2-OPEN
- SOURCE1-READ
- SOURCE2-READ
- SOURCE1-CLOSE
- SOURCE2-CLOSE
- EXTRACT-OPEN



Develop – Limitless Debug and Unit Testing

The image shows the Eclipse IDE interface with a COBOL project named 'ZBNKEXT1.cbl' in debug mode. The Outline view shows a hierarchical structure of the program, including sections like 'EXTRACT-FILE', 'Working-Storage Section', and 'MOVE SPACES TO WS-COMMAREA'. The Console view shows the execution log, including messages like 'Close the source file.' and 'SOURCE1-CLOSE.'. The Remote Systems view shows a local connection to '10.24.11.231' with several jobs listed.

Overlaid on the IDE is a 'Mainframe Display - Micro Focus Rumba' window. It shows the output of a mainframe application for 'Enterprise Server Demonstration' on '06.Mar.2013' at '15:18:06'. The display shows account balance information for 'B0001 - Fred Bloggs' and a table of account details.

Det	Account No.	Account type	Current Balance	Service Charge	Last Statement	Txns
-	450061494	Savings	235.32	25.00	10.Jan.2006	
-	737590226	Checking	0.00	50.00	10.Jan.2006	
-	541374829	Investment	3.60	25.00	10.Jan.2006	*

At the bottom of the terminal window, it displays 'Service charges are estimated based on your existing balances' and 'F1=Help F2=Colour F3=Quit F4=Return' along with the value 'V5.99c'. The status bar at the bottom shows 'Ready Running' and various system parameters like 'SSL APR NUMFLD NETE000 OVR CAP NUM W 11.3 127.0.0.1:5555 15:23:50'.

 Quality**Enterprise testing for rapid, cost-effective service delivery****Flexibility**

Remove existing capacity bottlenecks and improve time-to-delivery with a flexible, scalable testing model

**Quality**

Improve application delivery quality and throughput without consuming additional costs

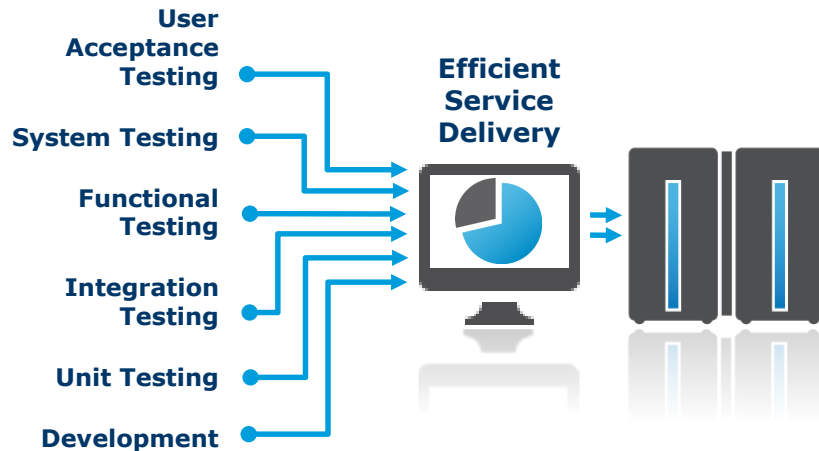
**Cost Efficiency**

Reduce or contain testing costs by testing more in less time using cheaper resources



Quality

Flexibility – remove bottlenecks, improve time to delivery



- Remove existing test capacity constraints with a scalable low cost test execution environment
- Scale up test capacity on demand
- Flexible access to mainframe applications, job steps and data where needed
- Faster time to delivery with less risk of production failure



Quality

Quality – Find issues faster, with no extra effort



- Bring agility through Continuous Integration for fast error detection and resolution
- Enable end-to-end testing for composite applications
- Faster resolution of complex runtime issues with improved diagnostic tools and core dump debugging



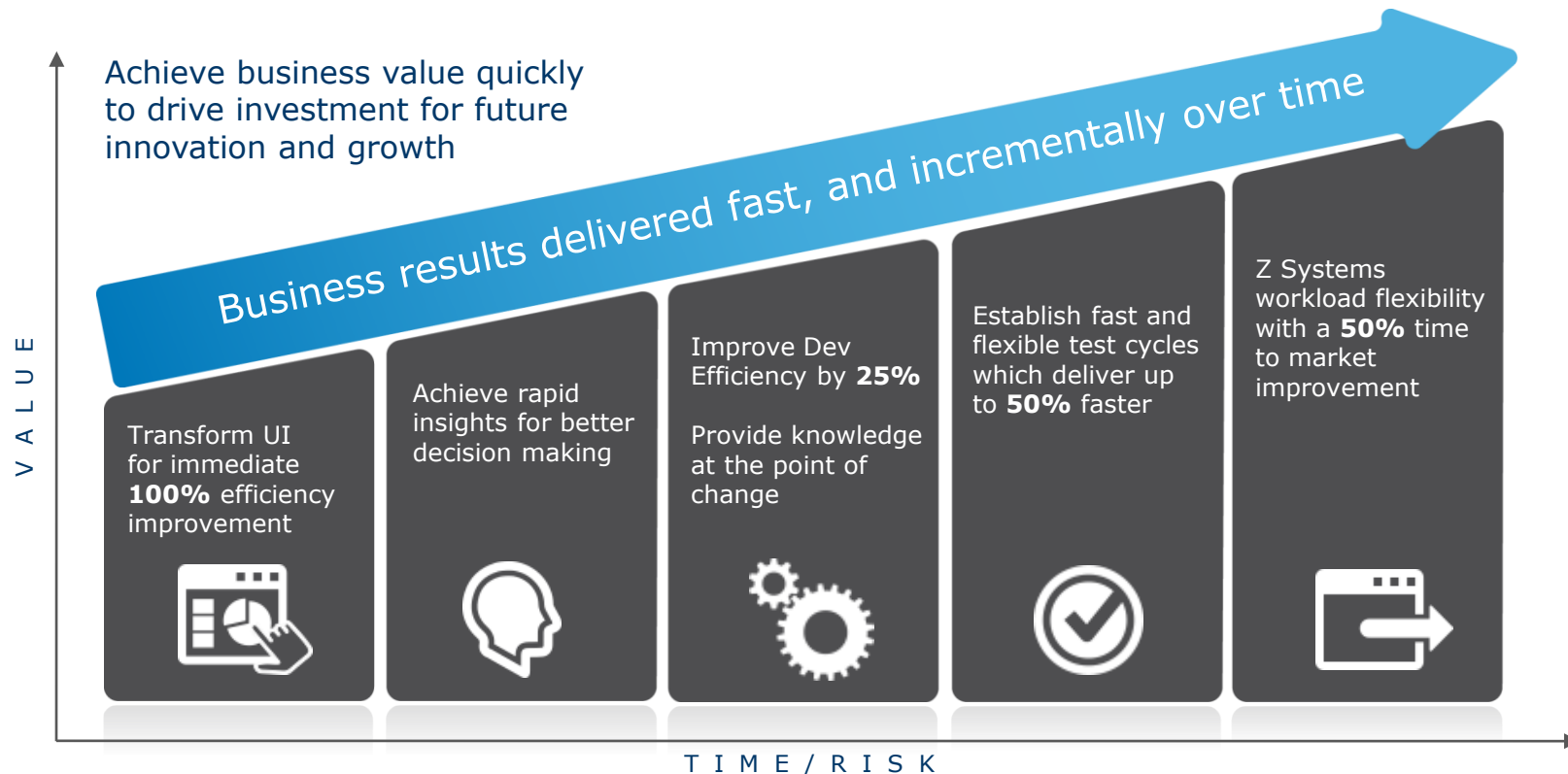
Quality

Cost efficiency – Effective rapid service delivery

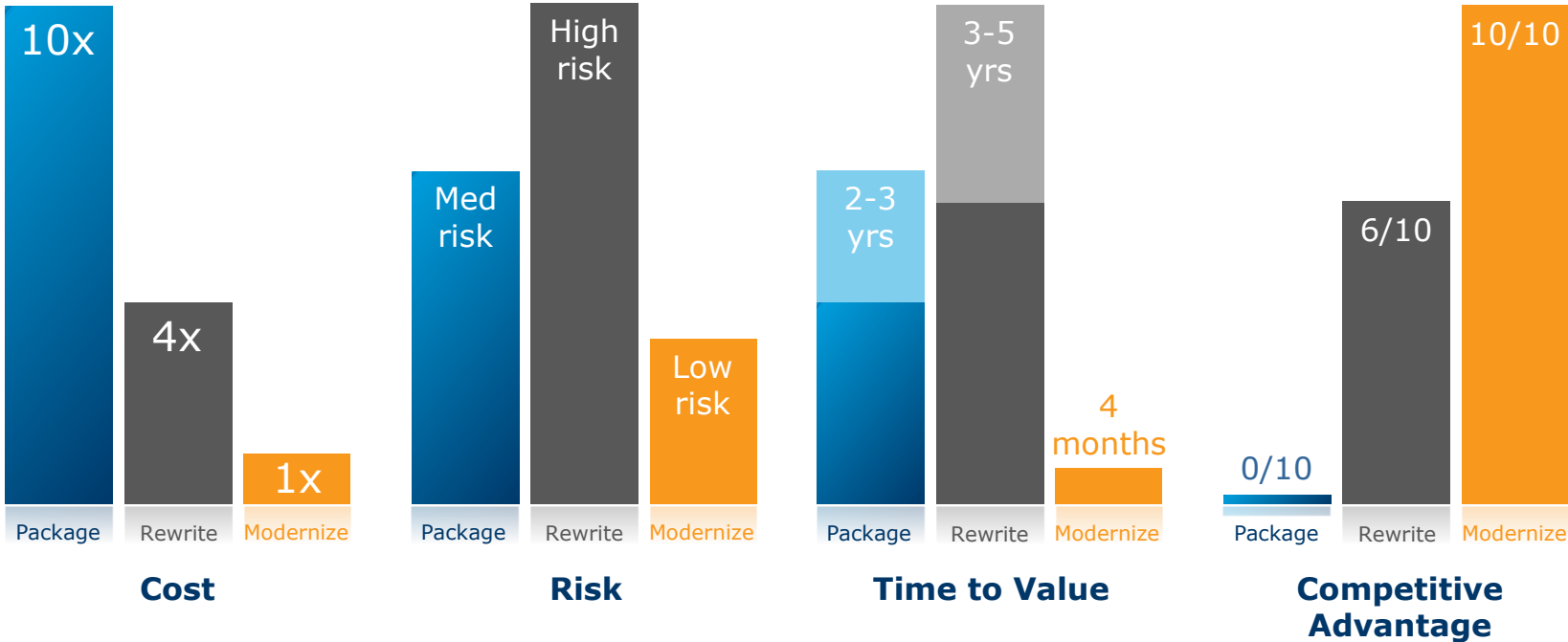


- Reduce or contain test MIPS consumption to free up headroom for production workload
- Virtualization for cost-effective access to unlimited test capacity
- Simple set up and management to remove reliance on systems administrators
- Reduce the cost of delivery by finding issues earlier

Delivering Better Time to Value



Customer Success



“ The IBM z System is a result of more than \$1 billion in R&D investments over the past four years... We are continually working with our technology partners to help our clients maximize the value in their IBM mainframes, and this latest innovation from Micro Focus is a great example of that commitment.

Vice President and Business Line Executive, IBM z Systems, 2013



IBM z13 is the industry leading business execution environment for enterprise application workload where scalability, performance and extensibility are core requirements for successful IT service delivery. Micro Focus is delighted to support the latest generation of IBM mainframe technology innovation, the z13

Chris Livesey, CMO, 2015

Mainframe Solutions

Next steps – Value Profile Meeting

- Outline survey of key application stakeholders
- Micro Focus / Client meeting
- Discussion of current situation, strategy, criteria, priority
- Review and outline proposal within days

www.microfocus.com/timetovalue

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