On-demand Mainframe Testing Capacity in a DevOps World

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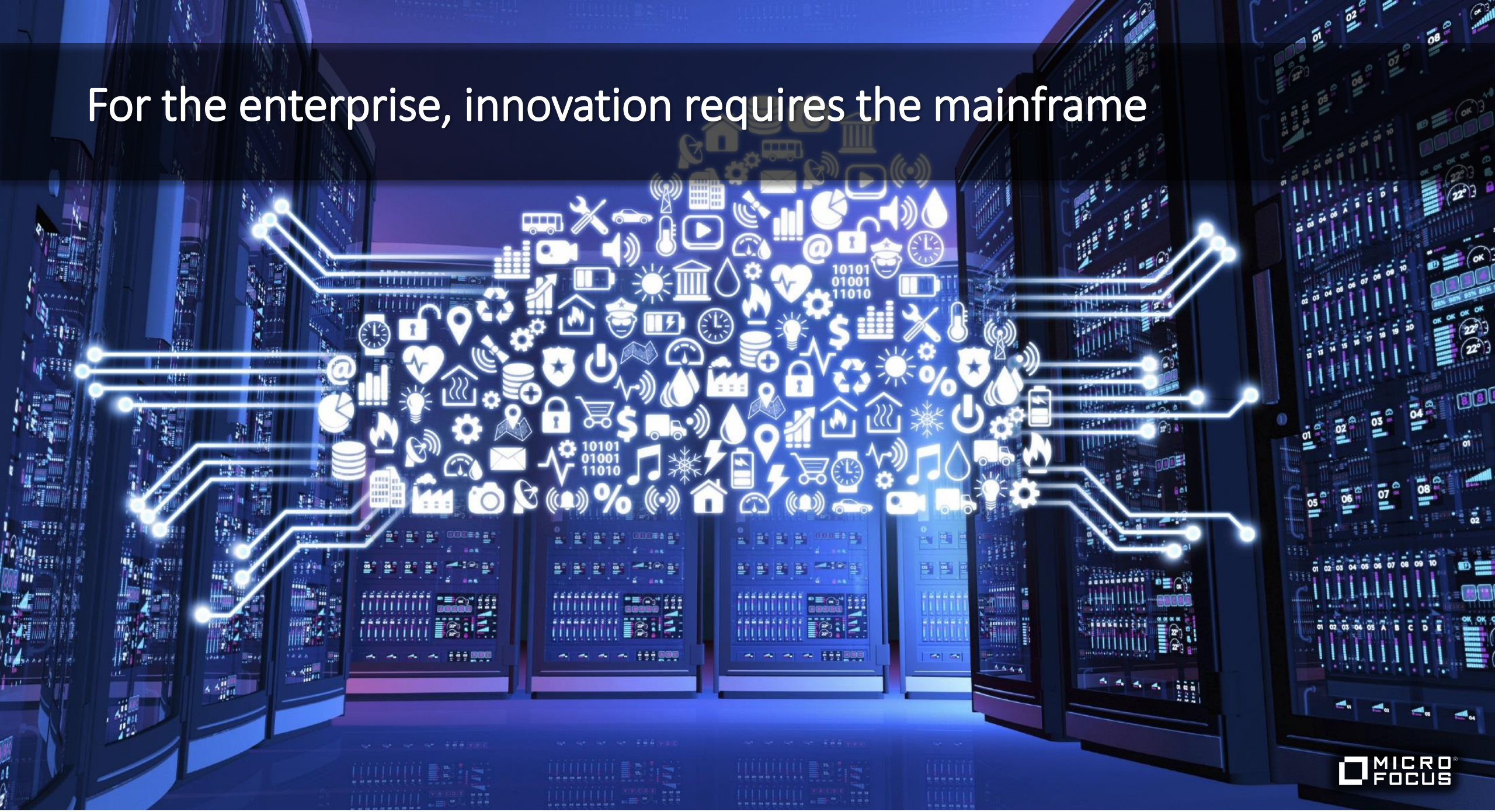
Micro Focus

November 2019
Session MG

Agenda

- Mainframes and innovation
- What is changing?
- Modernisation approaches
- Improving Testing in a DevOps world

For the enterprise, innovation requires the mainframe



MICRO FOCUS

Digital Transformation is Driving Business Change

According to Forrester and Accenture:

#1 priority

Improve the customer experience

Grow revenues	Improve differentiation	Reduce costs

5% of organizations believe they have mastered digital to a point of differentiation from their competitors

Mainframe Innovation

The Move to Modernize

58% want to fully leverage their mainframe

(11th annual BMC Mainframe Market survey)

67% are increasing mainframe capacity this year.

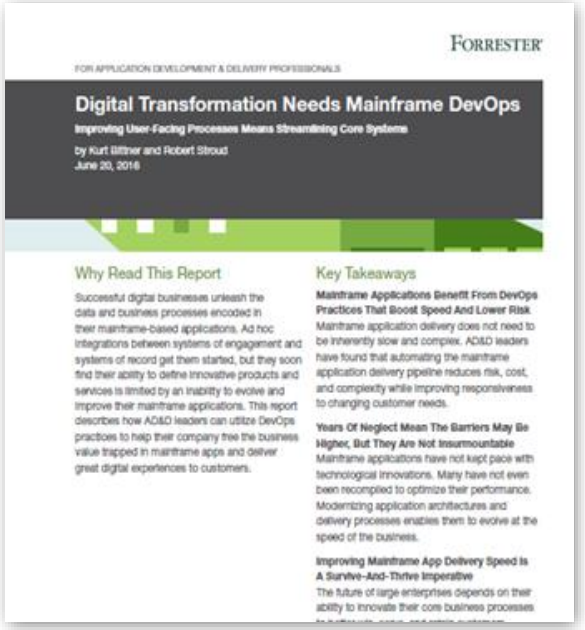
(11th annual BMC Mainframe Market survey)

50% are using Linux on z Systems.

(IBM Systems Magazine in November 2016)

Faster mainframe application delivery is a 'Survive and Thrive' imperative.

(Forrester)


FORRESTER

FOR APPLICATION DEVELOPMENT & DELIVERY PROFESSIONALS

Digital Transformation Needs Mainframe DevOps

Improving User-Facing Processes Means Streamlining Core Systems

by Kurt Bittner and Robert Stroud
June 20, 2016

Why Read This Report

Successful digital businesses unleash the data and business processes encoded in their mainframe-based applications. Ad hoc integrations between systems of engagement and systems of record get them started, but they soon find their ability to define innovative products and services is limited by an inability to evolve and improve their mainframe applications. This report describes how AD&D leaders can utilize DevOps practices to help their company free the business value trapped in mainframe apps and deliver great digital experiences to customers.

Key Takeaways

Mainframe Applications Benefit From DevOps Practices That Boost Speed And Lower Risk

Mainframe application delivery does not need to be inherently slow and complex. AD&D leaders have found that automating the mainframe application delivery pipeline reduces risk, cost, and complexity while improving responsiveness to changing customer needs.

Years Of Neglect Mean The Barriers May Be Higher, But They Are Not Insurmountable

Mainframe applications have not kept pace with technological innovations. Many have not even been recompiled to optimize their performance. Modernizing application architectures and delivery processes enables them to evolve at the speed of the business.

Improving Mainframe App Delivery Speed Is A Survive-And-Thrive Imperative

The future of large enterprises depends on their ability to innovate their core business processes

45% are implementing DevOps practices or planning to do so.

(Gartner)

Why Modernize the Mainframe?

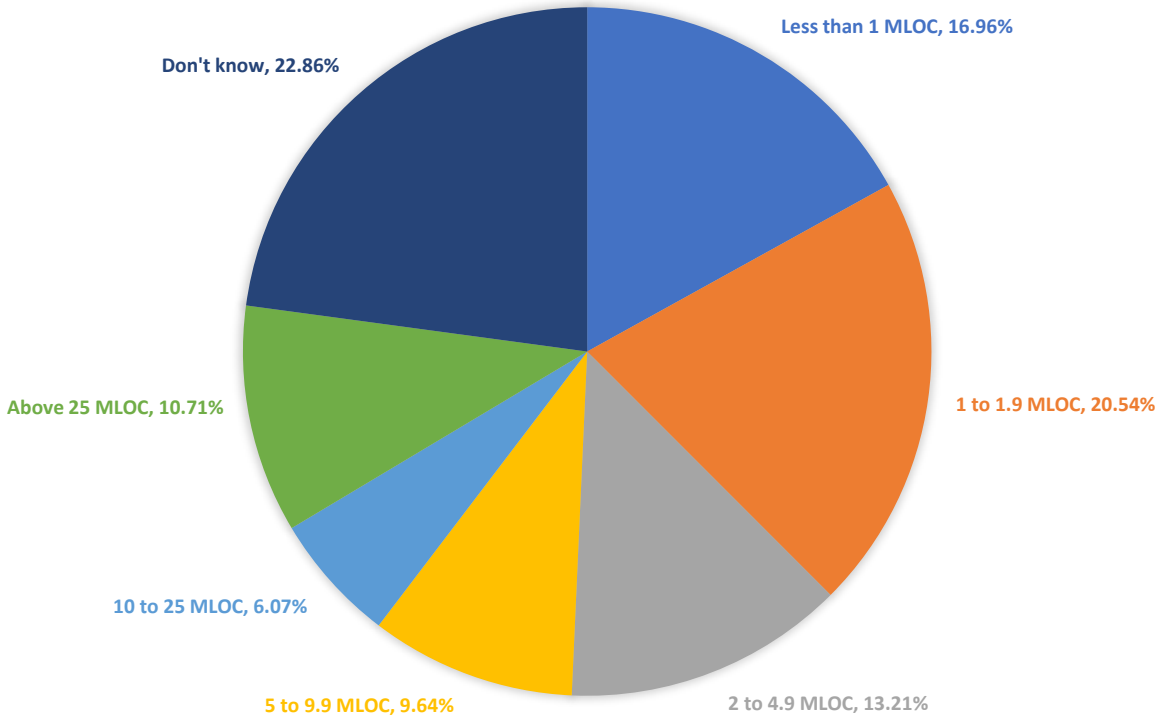
2017 Mainframe Research

85% of mainframe applications are strategic

10+ year lifespan for mainframe applications

2B lines of code currently in production

Mainframe application size (MLOC)



2017 Mainframe Research

Mainframe Applications Are Moving Forward

46%
Of mainframe applications will be maintained

38%
Of mainframe applications will be modernized

Business need drives IT strategy

Modernization Drivers

1	Align apps to business strategy and deliver competitive advantage
2	Reduce cost and risk
3	Web and mobile access
4	Align business to new digital strategy

IT Priorities

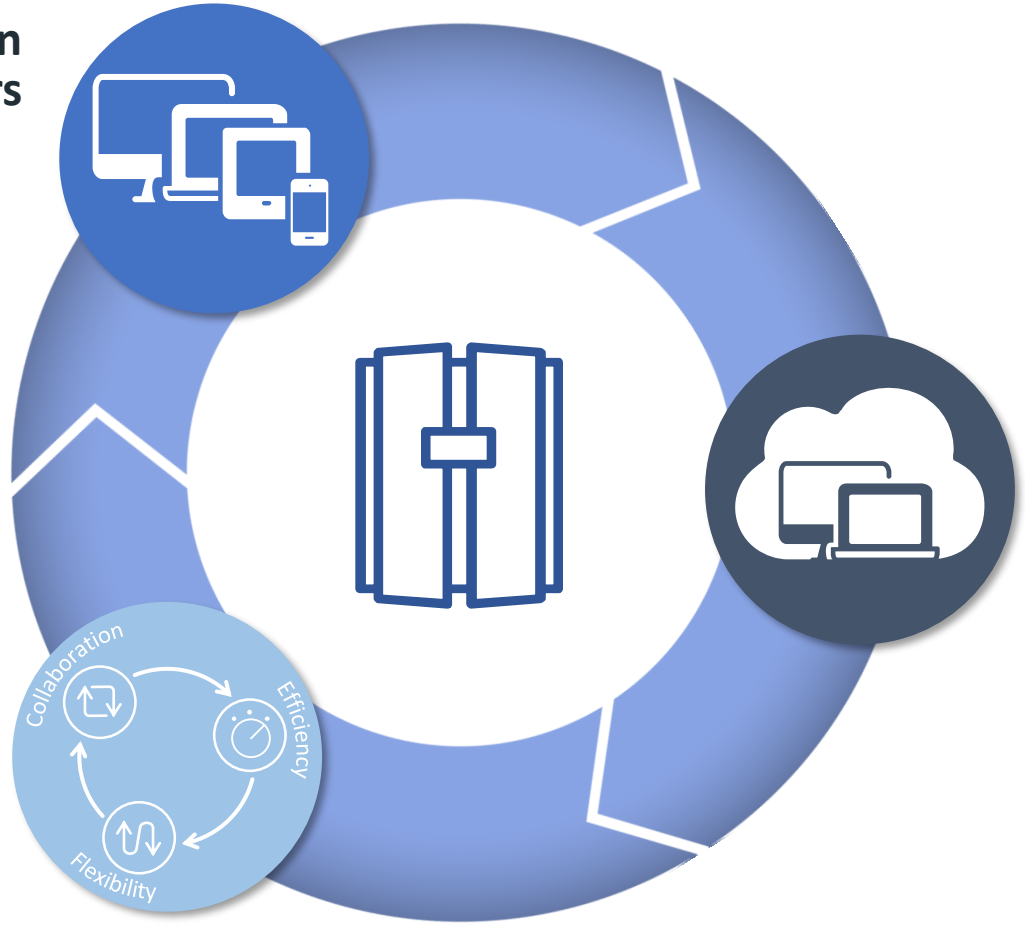
1	Moving to Cloud and Virtualization
2	Linux Adoption
3	Modernization w/ .NET, Java or REST APIs
4	Adoption of modern IDEs

The Mainframe Modernization

The hybrid challenges and drivers for change

Application Modernization Drivers

- New markets and services
- IoT/Proliferation of devices
- Competitive Pressure



Process Modernization Drivers (DevOps)

- Time to market
- Quality
- Access to skills

Infrastructure Modernization Drivers

- Lower cost and changing cost models
  - Opex vs Capex
- On prem vs Cloud
- Flexible deployment models

Mainframe DevOps

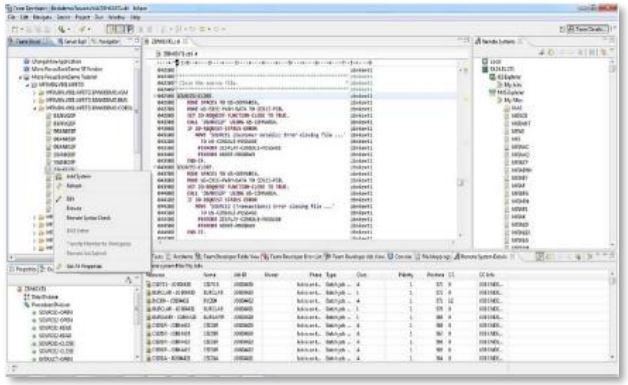
Unite dev and test teams using integrated toolsets

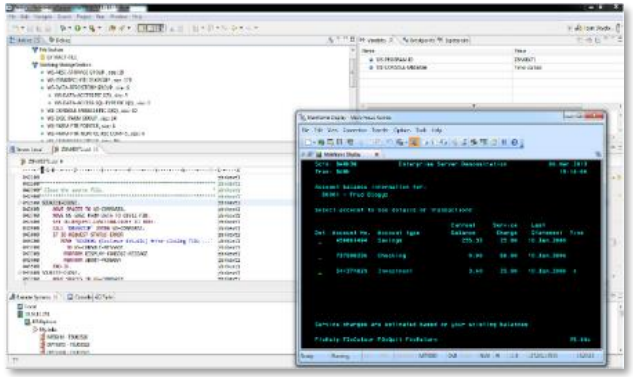
Understand

Make better development decisions with application insight provided at the point of change

Develop

Remove infrastructure limitations and unnecessary mainframe reliance by developing on and off the mainframe





Accelerate

Maximize developer efficiency and improve delivery times by up to 40%

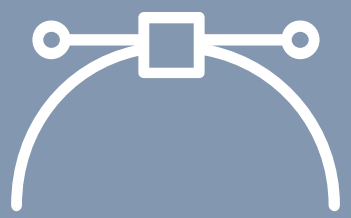
Extend

Modernize and integrate mainframe applications with web services and the open Eclipse framework

Market Challenges

Test

Low cost, scalable mainframe application testing



Flex and Scale

Remove capacity bottlenecks and improve delivery time with flexible, scalable resources

Quality

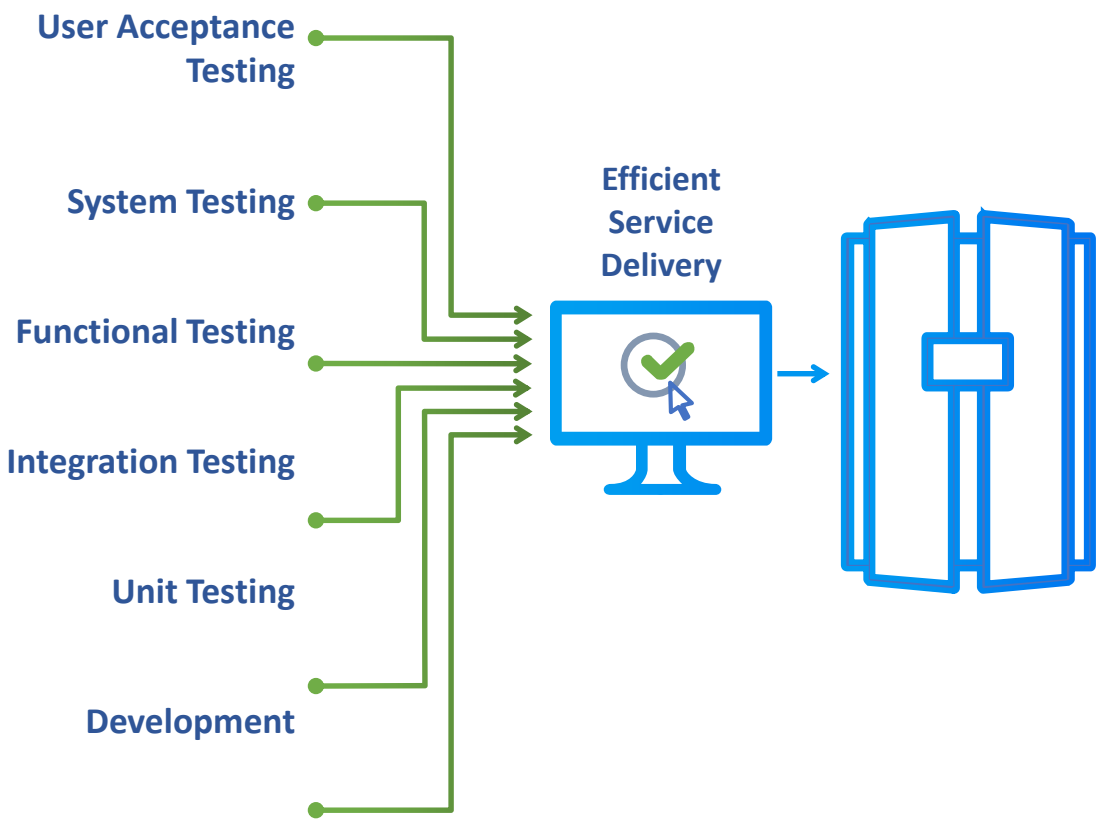
Higher application quality and throughput without additional cost

Cost Efficiency

Manage test capacity and resource using lower cost environments

Test

Flex and Scale – Remove bottlenecks. Improve time to delivery



- Remove capacity and resource 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
- Easier continuous integration (CI) for the mainframe

Test

Quality – Shift Left: Test early and often

- Resolve quality issues, faster through greater agility and continuous integration
- Shift testing left
- Enable end-to-end testing for composite applications
- Faster resolution of complex runtime issues through use of advanced diagnostic tools

Test

Cost Efficiency – More test capacity at a lower cost

- Manage test resource consumption to free up MSUs for production workload
- Virtualize test environments for cost-effective capacity
- Simple configuration to remove reliance on systems administrators
- Reduce delivery cost by finding and resolving issues earlier

Enterprise Test Server
Key Technology

Mainframe Subsystems Support

- **JCL** support for testing of batch applications, support for common mainframe utility programs
- **VSAM** and **QSAM** support test on EBCDIC data files on Windows
- **DB2** support using a DB2 compatible database (or connect to IBM DB2)
- **CICS** support including integrated EXEC CICS pre-compiler
- **IMS** transaction manager (**IMS/TM**) and database manager (**IMS/DB**) support

Micro Focus has over 25 years leadership in providing IBM mainframe compatibility and development process improvements

Application Language Support

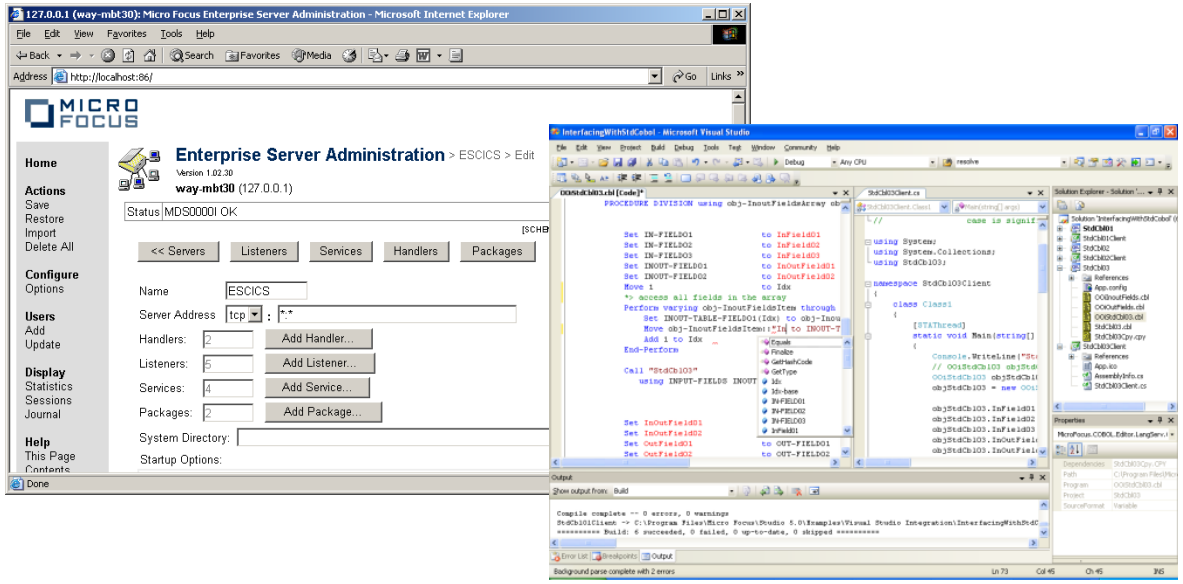
- **COBOL** and **PL/I** compilers compatible with all major IBM language versions
- **Assembler** programs or sub-routines can be built and linked for use in pre-production testing

Enterprise Test Server
Key Technology

GUIDE SHARE EUROPE UK REGION

Mainframe Connectivity

- Remote invocation of mainframe processes
- Access to mainframe source and data with automatic synchronisation



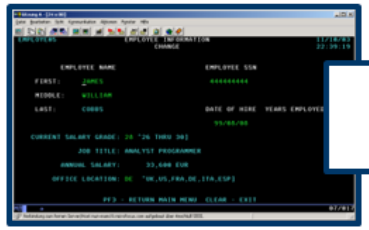
Windows based configuration

- **Web browser-**based control and management of IMS, CICS and batch test regions for simple configuration
- **Scalable** multi-user, multi-region architecture provides robust test harness

Testing Tools

- **Test Coverage Reporting** - ensure that all code paths have been executed during testing.
- **Test automation** of GUI or 3270 based applications – use Micro Focus UFT or SilkTest to automate testing and reuse test artefacts

Micro Focus – Mainframe Application Execution Architecture



3270 clients

Oracle AS
WebSphere
Jboss
JSP to EJB

Micro Focus COBOL Resource Adapter

Binary Flow

JCA

Web Service/SOAP

HTML/http clients

Physical/Virtual Server

Enterprise Server Region

TN3270 Listener

J2EE/EJB Listener

COBOL Web Services Listener

http Listener

JCL Engine

Other Listeners

Workload Dispatcher

CICS , IMS, COBOL, PL/I Sub-routines

Linkage/Commarea

COBOL PL/I

IMS DB/DC

Batch / JCL

Enterprise Server Admin Console

Security

Output & Print Manager

Job Scheduler

Operations Monitoring

Other 3rd party interfaces

Micro Focus Enterprise Test Server

One concept – multiple value

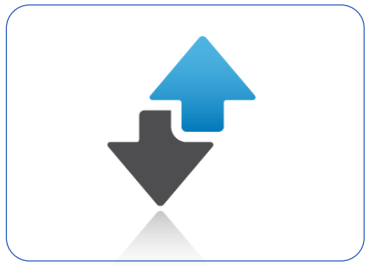
Scale Up on Demand

Faster Throughput

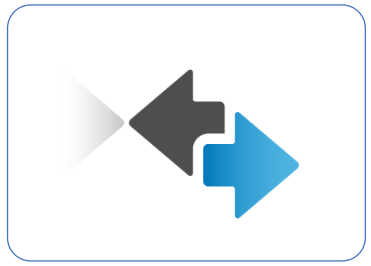
Reduce/contain MIPS

Efficient Service Delivery

Higher Quality



Agile Development



End to end testing

Enterprise Solutions
Customer successes

Banca Popolare di Sondrio — Fondata nel 1871

"The approach proposed by Micro Focus was 20 percent cheaper than the alternative option of expanding our mainframe capacity. Over three years, we expect to cut development and testing costs by 40 percent through heightened productivity and by exploiting efficiencies."
Milo Gusmeroli Vice President, Banca Popolare di Sondrio

SPV
Statens tjänstepensionsverk

"Using the Micro Focus solutions has increased our confidence in the quality of our production releases and we are able to include more enhanced functionality in each release we issue.
MATS BERGMAN System Developer SPV

Reduced annual costs from $3 million to $120,000 per environment with test environments being provisioned in hours rather than weeks. Improved testing time by 50% which resulted in increased business agility by tripling the number of major releases per y***ear***
MAJOR Global Insurer

Global insurance company

Overcomes core insurance application delivery management bottlenecks

Challenge

- Pressure to deliver more functionality to core insurance application
- Bottlenecks identified in the way source code was managed through Endevor resulting in inefficiencies in
  - The way parallel development changes are merged
  - Support for large enhancements with long running testing streams
- Inefficient mainframe tools slowed the development lifecycle and made it hard to train new staff

Products

- Enterprise Developer for z
- Enterprise Sync

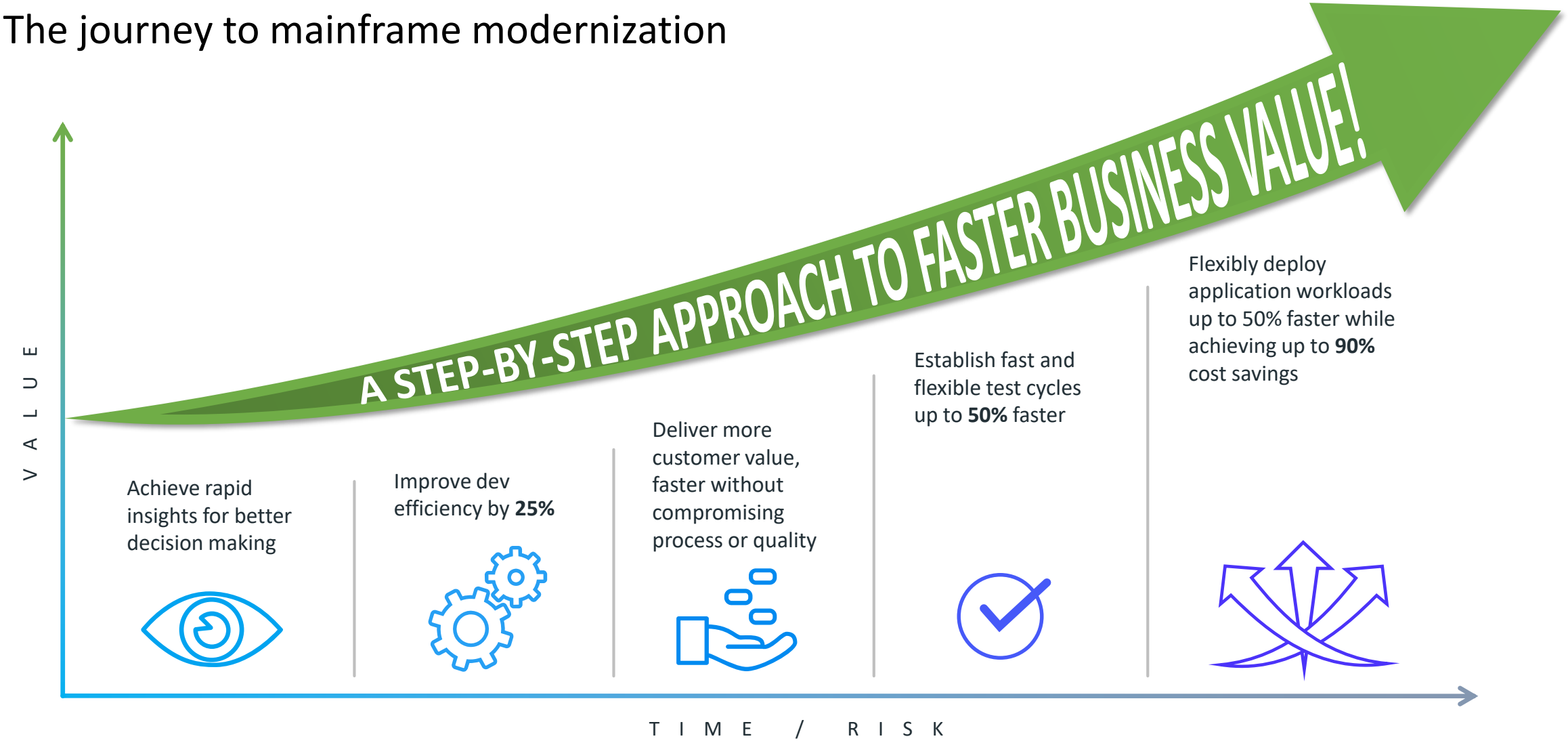
Results

- Retrofitting of changes is now a much simpler, less error prone process which can be automated
- Easier access to change history means flexibility on how changes are merged back into different streams
- The unique Stream based views within Enterprise Sync/AccuRev has improved developer adoption
- Usage of modern Eclipse based development tools means code changes can be completed faster and it is easier for new joiners to get up to speed

Next Steps

Innovate Faster with Lower Risk

The journey to mainframe modernization



Mainframe Modernization

The Next Step – Value Profile Meeting

- Complimentary
  - One day
  - Survey of stakeholders
- Application overview
- Technical review
- Strategy fit
- Assessment and recommendations provided within days

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- Do it online at http://conferences.gse.org.uk/2019/feedback/nn
- This session is MG

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This is the three digit number on the bottom of your delegate badge

2. Was the length of this presention correct?

1 to 4 = "Too Short" 5 = "OK" 6-9 = "Too Long"

1 2 3 4 5 6 7 8 9

3. Did this presention meet your requirements?

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