Accelerating Continuous Delivery for Enterprise Systems - Mobile to Mainframe

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8 Key Practices Accelerate Delivery

1. Minimum Viable Product
2. Deliver in Small Batches
3. Minimize Hand-offs, Maximize Flow
4. Eliminate Overhead
5. Automate Testing using APIs
6. Dedicate Teams
7. Practice Transparency
8. Loosely Coupled Architectures

Base: 600 IT professionals with app development responsibilities from US, Canada, UK, France, & Germany
Source: A commissioned study conducted by Forrester Consulting on behalf of IBM, May 2014

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Utopia: Unicorn fun facts

The unicorns (born on the web companies) set the bar for DevOps.
Some examples:

amazon

11.6 seconds mean time between weekday deployments, 1079 max deployments in an hour[1]

15000 engineers working on 4000+ projects, 5500 code commits/day, 75M testcases run daily[2]

Google

>100 releases/day[3]

NETFLIX

6419 deployments to production/year, 25/day, by 196 different people [4]

Etsy

[1] http://www.slideshare.net/Dynatrace/why-everyone-needs-devops-now-gene-kim
[2] http://www.slideshare.net/realgenekim/why-everyone-needs-devops-now
[3] http://www.slideshare.net/jedberg/devops-at-netflix-reinvent
[4] http://www.slideshare.net/beamrider9/continuous-deployment-at-etsy-a-tale-of-two-approaches

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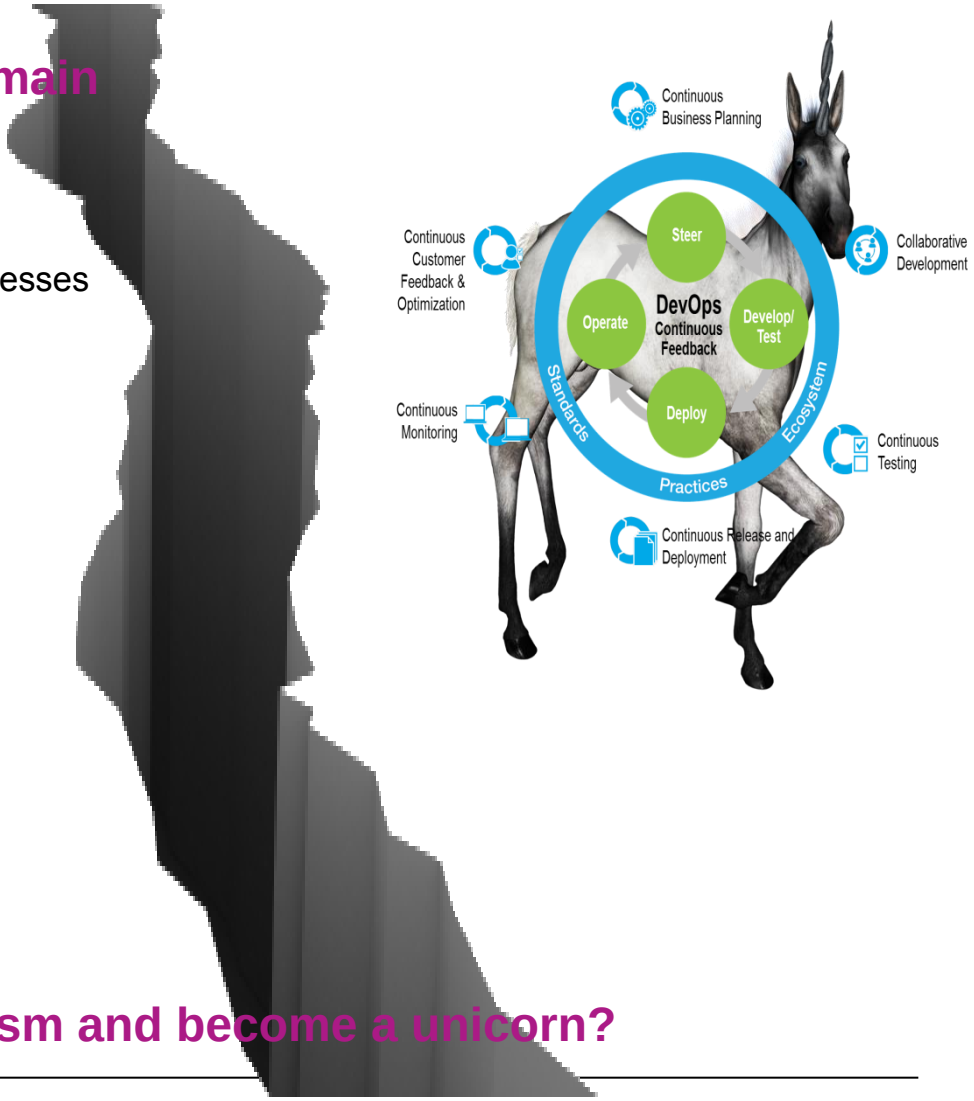
Reality: Most enterprise companies are not unicorns

Ancient Infrastructure and Beliefs Remain

- Outdated developer and team tools
- Aging developer population
- Disconnected teams, silos
- FUD: “millennials can’t code COBOL”, “manual processes exist for a reason”, “SoR dev can’t be as nimble as distributed dev”

Ancient Practices Need Overhauling

- Manual testing
- Availability of entire system is required to test
- Mainframe availability required (if some z)
- Reluctance to move test data off mainframe
- Cross-platform coordination required
- Manual project prioritization, status tracking



So, is it possible to cross this chasm and become a unicorn?

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Utopia: Enterprise unicorn fun facts

Yes!!! And, many large companies are leading the way.
Some examples:

80 deploys/week, <10 incidents/month[1]

80% reduction in critical defects, 70% increase in system availability, 90% on-time delivery vs. 60% previously[2]

reduced dev cost from 100M to 55M/year, 140% increase in number of products under development[3]

resale up 30% first half of 2014, 24% YoY increase in customer service rating[4]

[1] http://www.slideshare.net/DevOpsEnterpriseSummit/does14-ross-clanton-and-heather-mickman-devops-at-target-41869677
[2] http://www.slideshare.net/DevOpsEnterpriseSummit/tuesday-400-hayden-lindsey-and-carmen-de-ardo-final?
[3] http://www.slideshare.net/DevOpsEnterpriseSummit/does14-gary-gruver-macys-transforming-traditional-enterprise-software-development-processes
[4] http://www.slideshare.net/DevOpsEnterpriseSummit/tuesday-330-shakeel-sorathia-final?qid=d758c122-8df0-4e03-b2da-4ba4c7271897&v=qf1&b=&from_search=11

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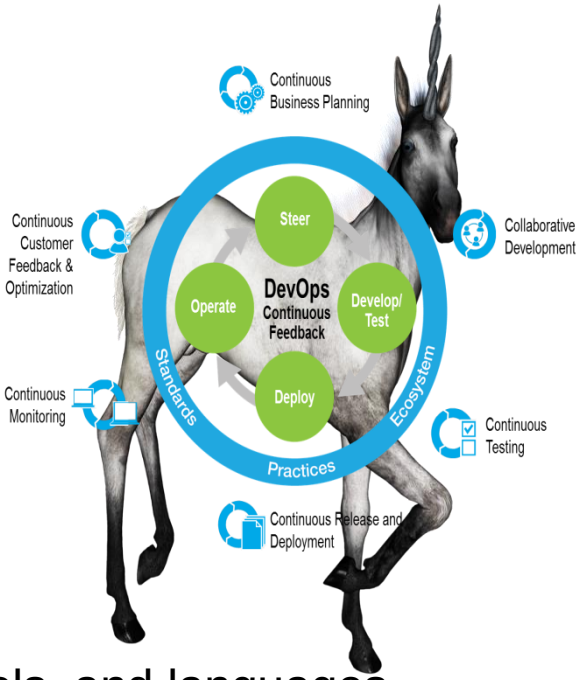
Evolving towards the unicorns

Best Practices

- Use modern multi-platform developer and team tools
- Automate deployment, configuration, and testing
- Use virtualized services to enable earlier testing
- Offload testing from the mainframe
- Build and deploy in small batches
- Start with small pilot projects to build confidence
- Use real-time dashboards
- Consolidate SCMs
- Build a staged rollout plan
- Train the teams in tool usage and process changes
- Organize with cross functional teams
- Gain executive buy-in and sponsorship up front
- Hire and train millennials on enterprise applications, tools, and languages
- Employ a loosely coupled architecture



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Evolving towards the unicorns

Best Practices

- **Use modern multi-platform developer and team tools**
- **Automate deployment and configuration**
- **Automate testing and using virtualized services**
- **Offload testing from the mainframe**
- **Build and deploy in small batches**
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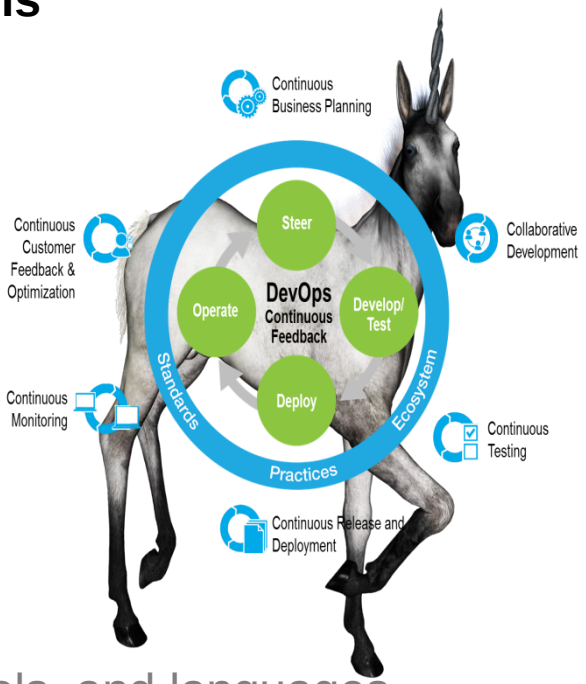

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Modern multi-platform developer and team tools

✓ Rational Developer Enterprise Edition (RDz) – modern IDE

Key practices:

- MVP
- Dedicated Teams
- Loosely Coupled Arch.
- Minimizing Hand-offs
  Maximizing Flow
- Small Batch Delivery
- Transparency
- Eliminate Overhead
- Automate Testing

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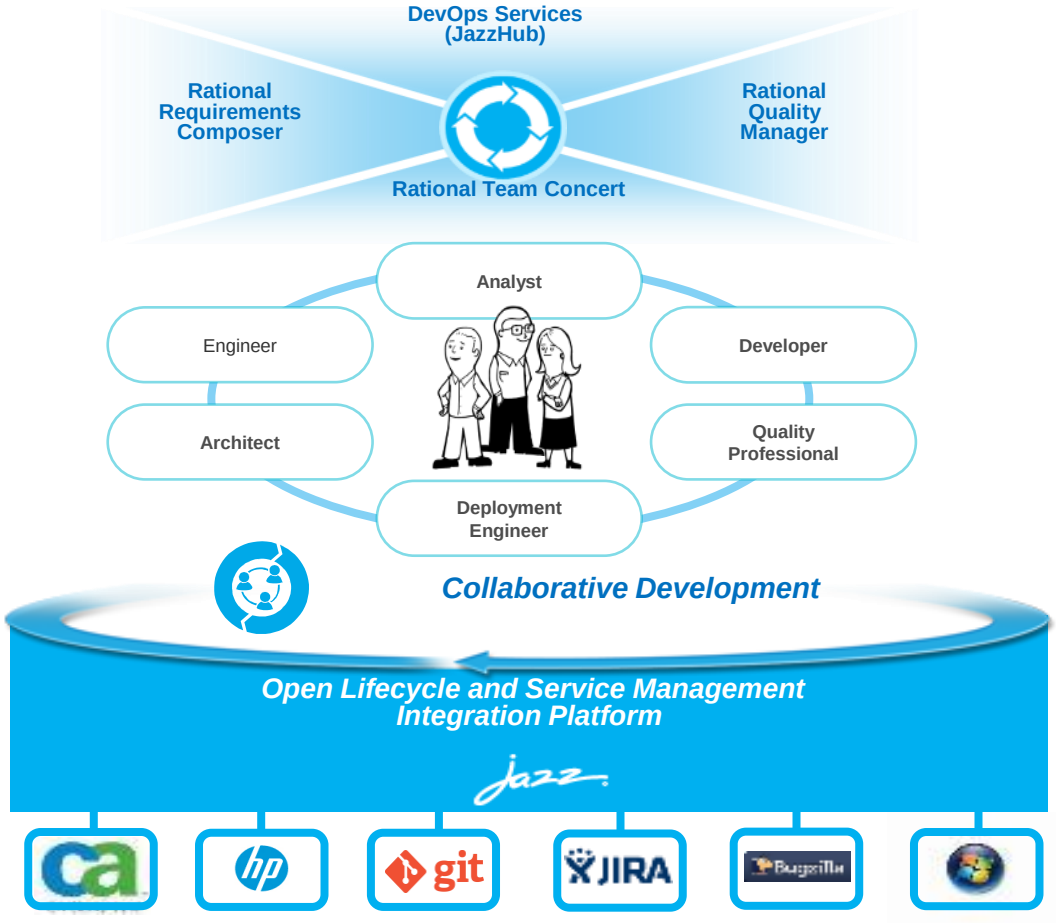
Modern multi-platform developer and team tools

- ✓ Rational Team Concert Enterprise Edition (RTCee) – collaborative team environment across platforms and the lifecycle



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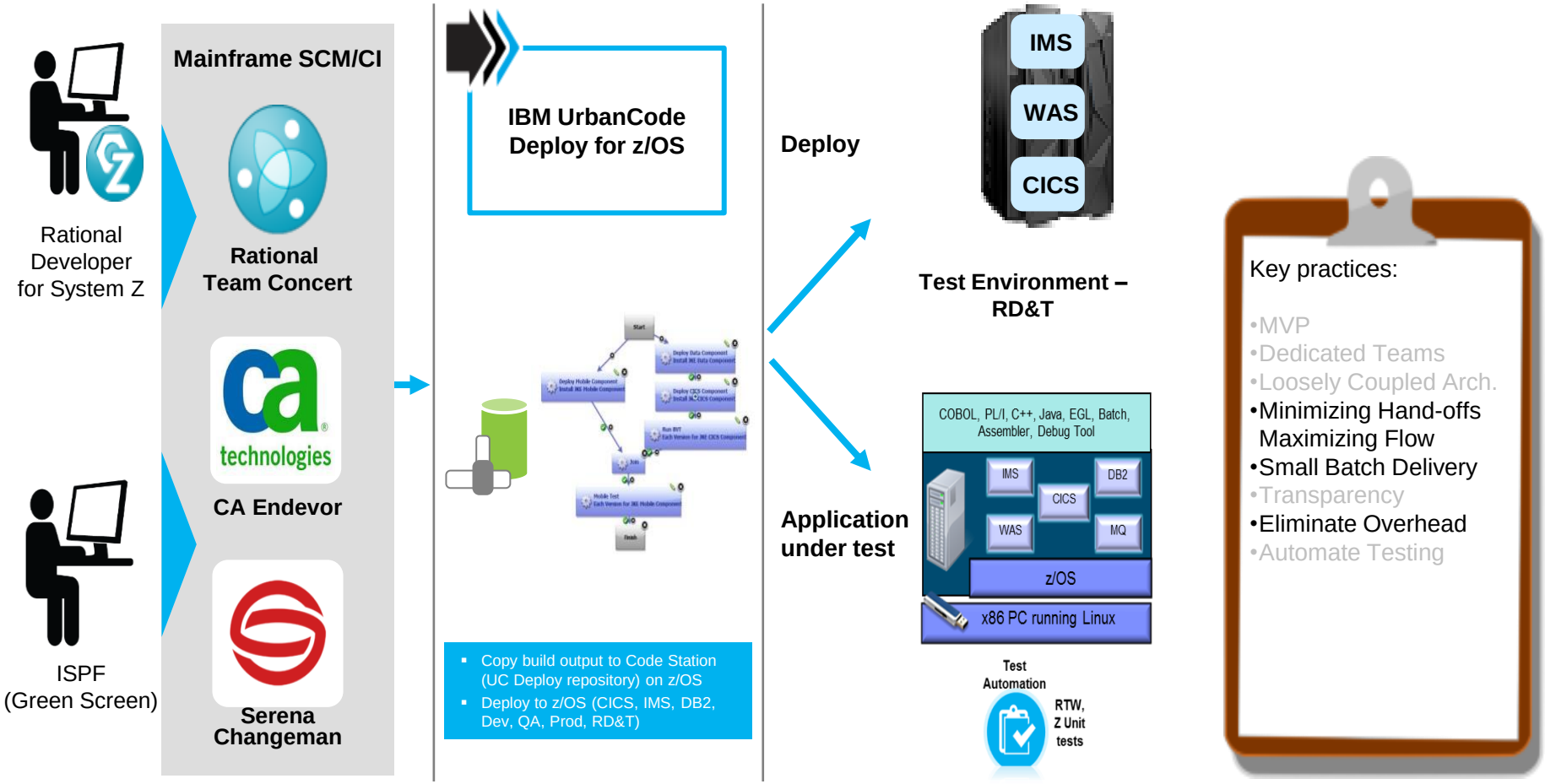
Automated deployment and configuration

✓ UrbanCode Deploy – multi-platform applications and middleware



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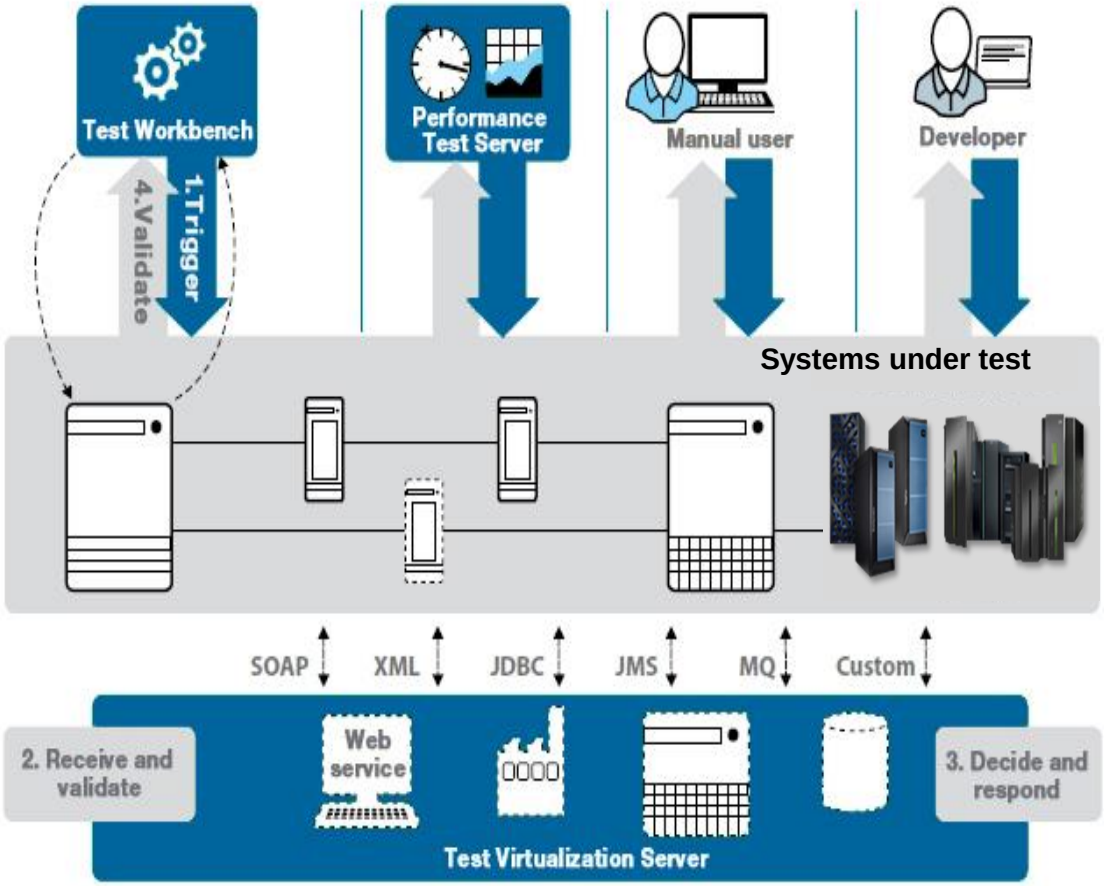
Automated testing and virtualized services

- ✓ Rational Test Workbench – automated testing of all aspects of the product



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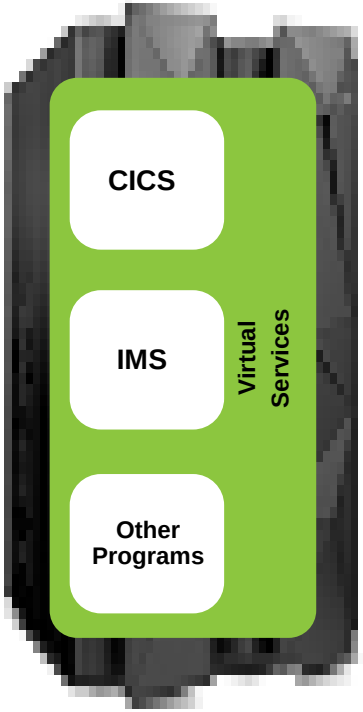
Automated testing and virtualized services

- ✓ Rational Test Workbench – virtual testing of systems and middleware

CICS and IMS

Clients (C, Java, etc.)

Rational Integration Tester



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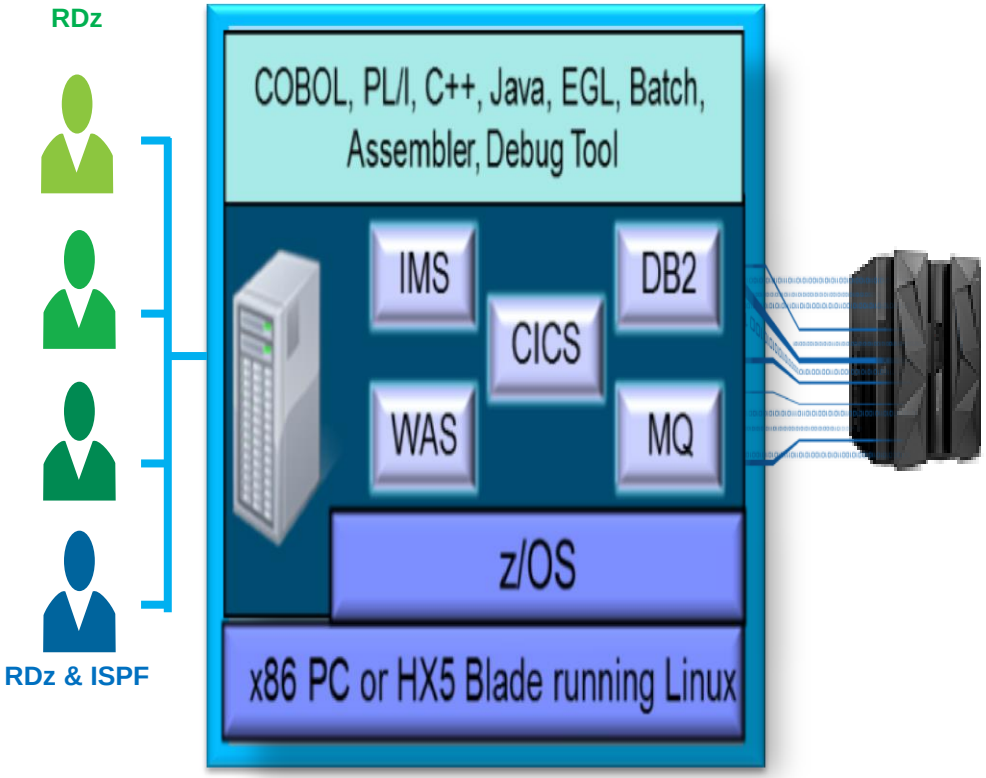
Testing off the mainframe

- ✓ Rational Development and Test Environment for System z – test z/OS software on Intel platforms without using z System hardware



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Build and deploy in small batches[1]

While not specific to a product, this is a critical best practice

- ✓ Reduces project risk
- ✓ Encourages automation
- ✓ Simplifies problem determination
- ✓ Speeds up feedback – “reduces queue size”
- ✓ Improves flow
- ✓ Reduces cycle time
- ✓ Increases efficiency
- ✓ Lowers overhead
- ✓ Improves project visibility
- ✓ Encourages decoupled architectures

[1] http://dev2ops.org/2012/03/devops-lessons-from-lean-small-batches-improve-flow/

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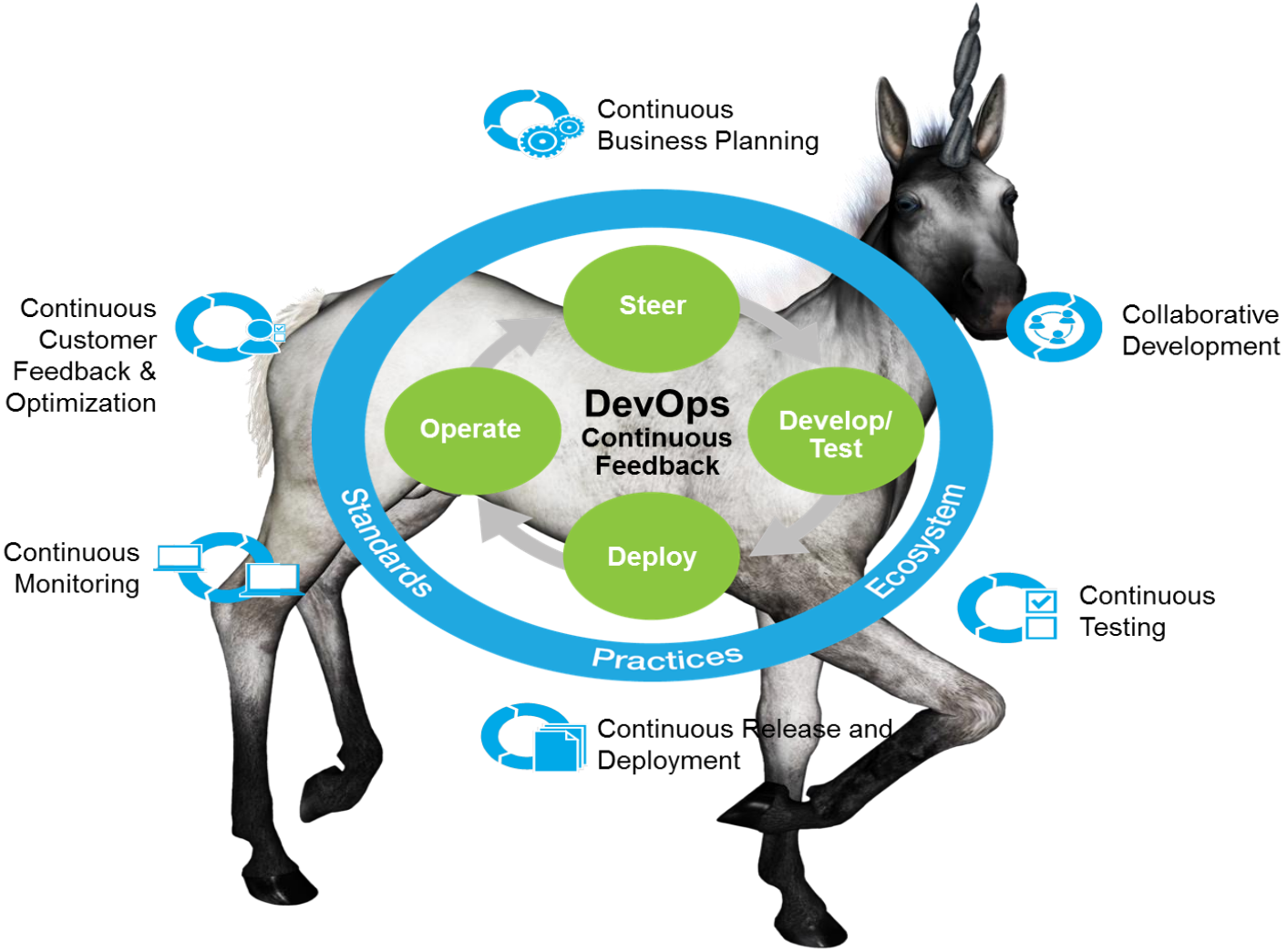
Delivering on the DevOps promise



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Continuously delivering you more value

Key new capabilities

Product	What's New?
Rational Developer for System z	Adds zUnit test capability to test COBOL and PL/I apps at a module level, including ability to drive unit tests for continuous integration builds
Collaborative Lifecycle Management as a Managed Service	Reduces cost with pay-for-use managed services with 99% (SLO) availability
Rational Development & Test for System z	Exploits latest middleware; now runs as a managed service reducing time to value and minimizing ongoing admin and capital expense
Rational Test Workbench	Virtualizes DB2 database access from CICS COBOL programs, tests/virtualizes CICS transactions over IPIC protocol, supports PL/I data structures
Urban Code Deploy	Enhances support for z/OS deployments with SMP/E install; supports JCL submission and job monitoring
Compilers	Exploits z13 and latest z middleware, gains up to 17+%[1] performance improvement with new optimizations in Enterprise COBOL; supports XL C/C++ compiler for Linux on z
PD TOOLS	Simplifies ordering with new PD TOOLS Modernization Solution Pack which bundles together the most commonly requested tools

[1] The performance improvements are based on internal IBM lab measurements. Performance results for specific applications will vary, depending on the source code, the compiler options specified, and other factors

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Modern and open tools for z Systems

Java 8 and z13

Optimized CICS, IMS and DB2 transactions

Up to **50%**

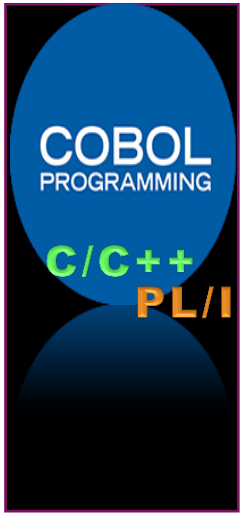
improvement for generic applications

Up to **2X**

improvement in throughout per core for security enabled applications

COBOL, PL/I, & C/C++ Compilers

z13 exploitation for increased performance



Up to **17%**

performance improvement

1.5x performance gain for COBOL apps using packed decimal

30x performance gain for COBOL stmts with SIMD instructions

Results based on internal IBM lab measurements. Results for specific applications will vary, depending on the source code, the compiler options specified, and other factors

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