



Mainstreaming Mainframe Development with Agile, DevOps

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To start – a poem

Devs are red

Ops are blue

Please work together

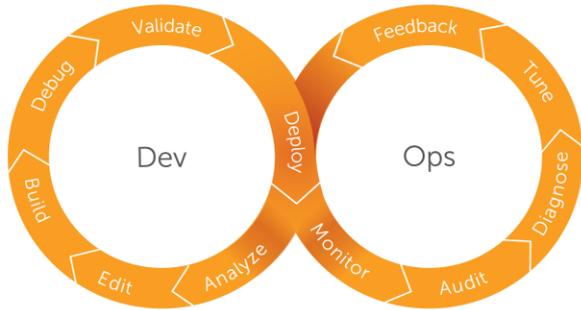
Or no uptime for you

Premise

- The mainframe is an integral part of an enterprise's digital economy strategy
- The traditional mainframe development paradigm is changing
- As the workforce changes from boomers to millennials...the next generation will bring best practices used by the open systems environment to the mainframe environment
- The transformation is already taking place as mainframe development is adopting Agile Development practices
- As Agile is embraced, it will bring about a renewed focus on process integration and automation need for Lean adoption (testing, provisioning, analysis)
- Ops automation is needed, both in pre (deployment) & post (issues) processes, to seamlessly integrate with Dev

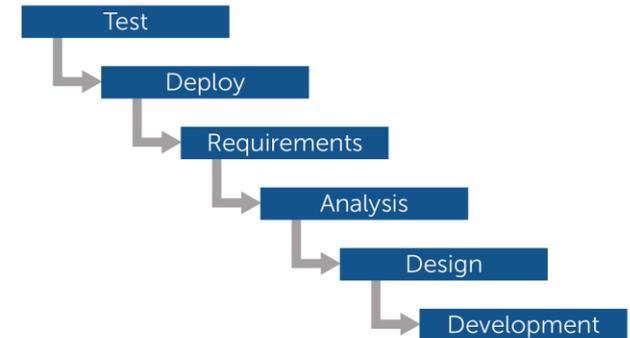
Fractured Ecosystem

OPEN SYSTEMS



Continuous Delivery

MAINFRAME SYSTEMS



12-18 Month Cycle

Application developers are the craftspeople of the digital business era...entrenched contributors operating in functional role silos must evolve their skills to build great software.

- *The Renaissance Developer Gartner August 2014*

What do we see

- Frustration – things can't mesh, delays
- No unified view, metrics
- Mainframe development is a black box, a mystery
- Mainframers feel they "aren't invited to the table", are out of the loop
- Mainframe projects can grow out of scope, be delayed
- Work is done around mainframe to just get it done
 - This means it actually can take longer
 - Duplicate code
 - Recreating existing time tested code
 - More complexity



But Mainframe Development Poses Challenges

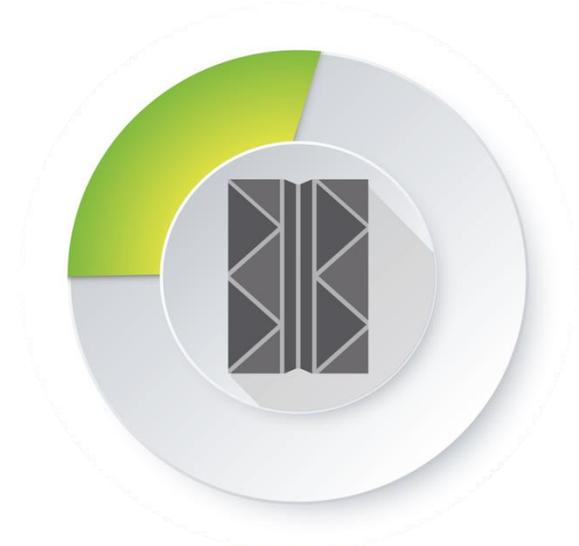
90% of companies surveyed experience challenges with their mainframe application development and delivery:



39%
see long
release cycles



33%
encounter reduced
project scopes



30%
need to work
around the mainframe

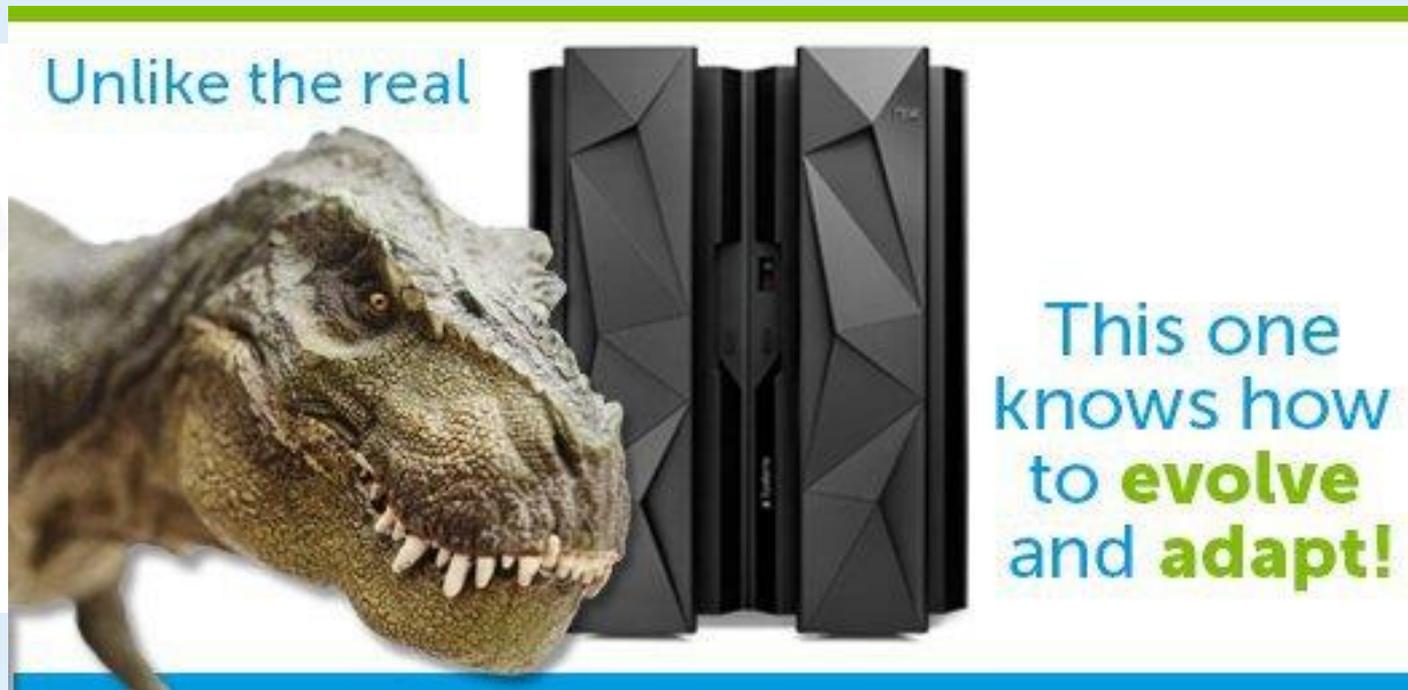
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["Improve Application Development And Delivery with DevOps,"](#) a commissioned study conducted by Forrester Consulting on behalf of Compuware, November 2016

The Status Quo can't remain

- The current system is broken, bi-modal doesn't work
- You can't have a fast side and a slow side
- Why would you want that? Who would want to be on the slow side or admit that it exists?
- Why not all fast, all connected, all with quality?
- Can it be done? Yes, but it requires change and commitment

Adapt or become extinct



Adopting DevOps Can Resolve Challenges

Companies Surveyed Experience Benefits as a Result of Adopting DevOps



48%

have shorter
development/delivery cycles



41%

respond faster
to business needs



45%

have improved
collaboration and
communication between silos

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["Improve Application Development And Delivery with DevOps,"](#) A commissioned study conducted by Forrester Consulting on behalf of Compuware, November 2016

The Business Value of the Connected Mainframe for Digital Transformation

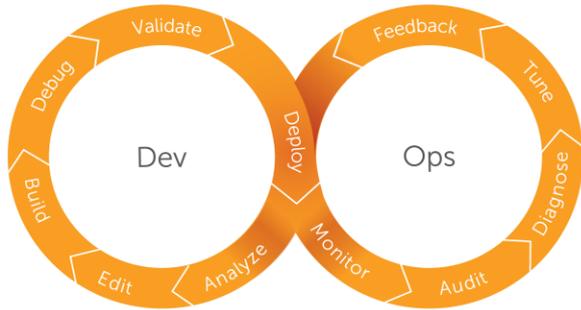
- Connected mainframe = modernized platform integrated with internal and external environments
- Adopters of strategy can achieve **>300% return** over five years in digital transformation quest
- Over **50%** of value came **from business productivity gains** realized from higher transaction volumes, new services and/or business expansion
- Mainframe orgs realize **47% lower** five-year **cost of operations** on average
 - “To do the mainframe apps on distributed, we’d need another 5,000 servers ...”
 - “We would probably need 2x as many staff for managing a distributed environment ...”



[“The Business Value of the Connected Mainframe for Digital Transformation,”](#) IDC, 2017

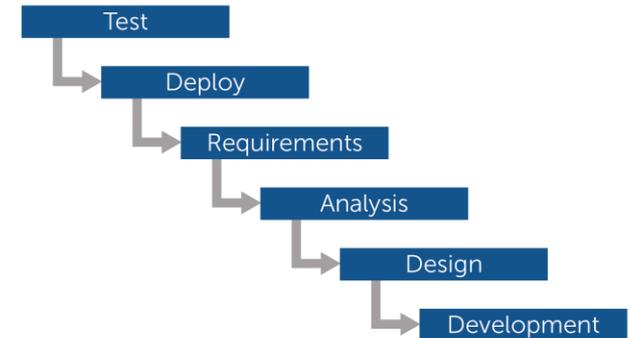
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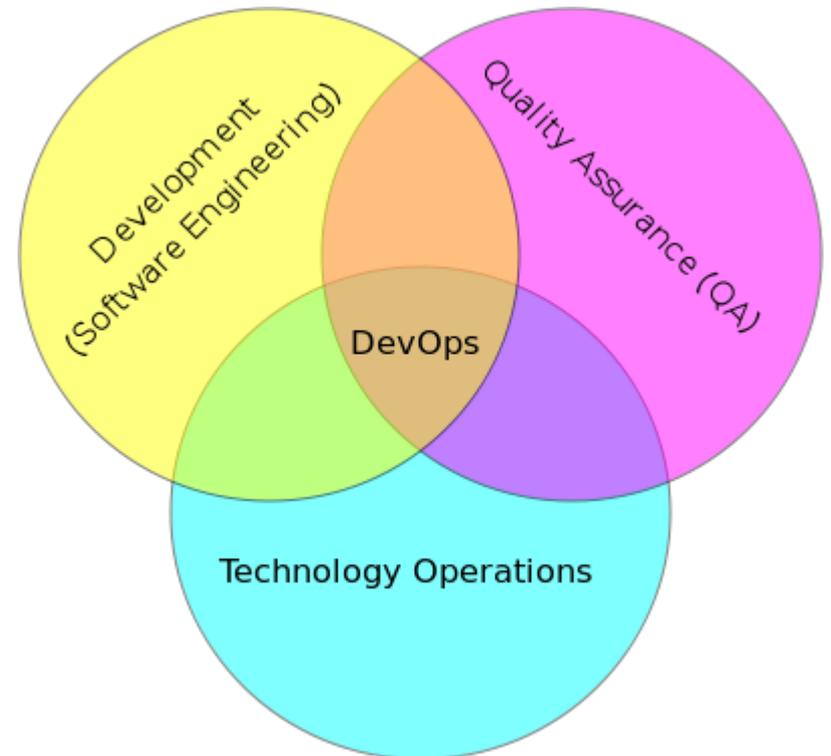
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So What is DevOps?

DevOps (a clipped compound of "development" and "operations") is a culture, movement or practice that emphasizes the collaboration and communication of both software developers and other information-technology (IT) professionals while automating the process of software delivery and infrastructure changes. **It aims at establishing a culture and environment where building, testing, and releasing software, can happen rapidly, frequently, and more reliably.**



My definition

If it is manual, it won't be done

If it is automatic and part of the process, it will be

- It is really a continuation of older practices
- But automated
- And compressed

DevOps Supporting Practices

- Iterative/Agile
- Minimum Viable Product
- Lean
- “Whole team”
- Collaboration
- Test Data Management
- **Continuous** Integration, Delivery, Feedback and Learning
- Automation – Analysis, Coding, Testing, Deployment, Monitoring
- Measurement

DevOps Supporting Tools

- Planning/Backlog Management
- Analysis, System & Program
- Code and Unit Test
- Deployment
- Orchestration
- Collaboration

It relies on combining current solutions

PERIODIC TABLE OF DEVOPS TOOLS (V2) EMBED DOWNLOAD ADD

1 Fm Gh Github																	2 Fm Aws AmazonWeb Services						
3 Os Gt Git	4 Pd Dm DBmaestro																	5 En Ch Chef	6 En Pu Puppet	7 Os An Ansible	8 En Sl Salt	9 Os Dk Docker	10 Pd Az Azure
11 Fm Bb Bitbucket	12 Os Lb Liquibase																	13 Os Ot Otto	14 En Bl BladeLogic	15 Os Va Vagrant	16 Fr Tf Terraform	17 Os Rk rkt	18 En Gc Google Cloud Platform
19 Os Gl GitLab	20 En Rg Redgate	21 Os Mv Maven	22 Os Gr Gradle	23 Os At ANT	24 Os Fn FitNesse	25 Fr Se Selenium	26 Os Ga Gatling	27 Fr Dh Docker Hub	28 Os Jn Jenkins	29 Pd Ba Bamboo	30 Os Tr Travis CI	31 Pd Gd Deployment Manager	32 Os Sf SmartFrog	33 Os Cn Consul	34 Os Bc Bcfgz	35 Os Mo Mesos	36 En Rs Rackspace						
37 Os Sv Subversion	38 En Dt Datical	39 Os Gt Grunt	40 Os Gp Gulp	41 Os Br Broccoli	42 Fr Cu Cucumber	43 Os Cj Cucumberjs	44 Fr Qu Qunit	45 Os Npm npm	46 Fm Cs Codeship	47 Pd Vs Visual Studio	48 Fm Cr CircleCI	49 Fr Cp Capistrano	50 Fr Ju JuJu	51 Os Rd Rundeck	52 Os Cf CFEngine	53 Fr Ds Swarm	54 Os Op OpenStack						
55 Os Hg Mercurial	56 En Dp Delphix	57 Fr Sb sbt	58 Os Mk Make	59 Os Ck CMake	60 Fr Ju JUnit	61 Fr Jm JMeter	62 Fr Tn TestING	63 Os Ay Artifactory	64 Fm Tc TeamCity	65 Fm Sh Shippable	66 Os Cc CruiseControl	67 En Ry RapidDeploy	68 Fm Cy CodeDeploy	69 En Oc Octopus Deploy	70 En No CA Nolio	71 Os Kb Kubemetes	72 Fm Hr Heroku						
73 En Cw ISPW	74 En Id Idera	75 Os Msb MSBuild	76 Os Rk Rake	77 Fr Pk Packer	78 Os Mc Mocha	79 En Xltv XL TestView	80 Os Jm Jasmine	81 Os Nx Nexus	82 Os Co Continuum	83 Fm Ca Continua CI	84 Pd So Solano CI	85 En Xld XL Deploy	86 En EB ElectricBox	87 Fm Dp Deploybot	88 En Ud UrbanCode Deploy	89 Os Nm Nomad	90 En Os OpenShift						

PERIODIC TABLE OF DEVOPS TOOLS (V2) EMBED DOWNLOAD ADD

Os Open Source	SCM	Database Mgmt	Build
Fr Free	CI	Repo Mgmt	Testing
Fm Freemium	Deployment	Config / Provisioning	Containerization
Pd Paid	Cloud / IaaS / PaaS	Release Mgmt	Collaboration
En Enterprise	BI / Monitoring	Logging	Security

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91 En Xlr XL Release	92 En Ur UrbanCode Release	93 En Bm BMC Release Process	94 En Hp HP Codar	95 En Au Automic	96 En Pl Plutora Release	97 En Sr Serena Release	98 Pd Tfs Team Foundation	99 Fm Tr Trello	100 Pd Jr Jira	101 Fm Rf HipChat	102 Fm Sl Slack	103 Fm Fd Flowdock	104 Pd Pv Pivotal Tracker	105 En Sn ServiceNow
106 Os Ki Kibana	107 Fm Nr New Relic	108 Os Ni Nagios	109 Os Zb Zabbix	110 En Dd Datadog	111 Os El Elasticsearch	112 Os Ss StackState	113 En Sp Splunk	114 Fm Le Logentries	115 Fm Sl Sumo Logic	116 Os Ls Logstash	117 Os Gr Graylog	118 Os Sn Snort	119 Os Tr Tripwire	120 En Ff Fortify

10 Steps to Mainframe Agile Development



STEP 1

Define the Desired State



STEP 2

Modernize the Mainframe Development Environment



STEP 3

Adopt Automated Unit Testing



STEP 4

Gain Graphical, Intuitive Visibility into Existing Code and Data Structure



STEP 5

Enable Earlier Detection of Application Quality Issues and Establish Quality KPIs



STEP 6

Initial Training in and Adoption of Agile Processes



STEP 7

Use Operational Data Throughout the Development, Testing and Production Lifecycle



STEP 8

Agile-enable Core Source Code Management Functions



STEP 9

Automated, Intelligent Deployment



STEP 10

Cross-platform Continuous Delivery



The Mainframe Software Partner
For The Next 50 Years