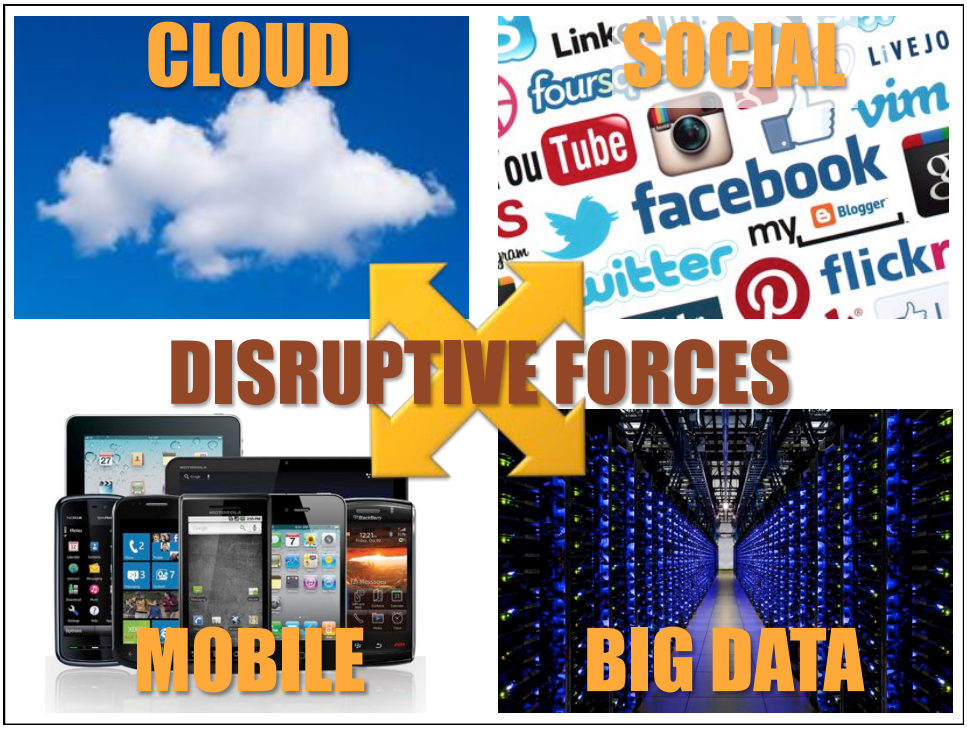
Continuous Delivery
&
The Changing Role of the Tester

Dr Kelvin Ross
ANZTB 2015, Auckland
22 May 2015

BLOCKBUSTER
BLOCKBUSTER
STORE CLOSING
MUST GO!
HELD BACK!
STORE CLOSING
UP TO 50%
ALL DVD'S AND GAMES MUST BE SOLD!
ENTIRE STORE
Disruptive Technology

Disruptive Technology
Yellow Pages
L To Z
Auckland 2004
Yellow Pages
A To K
Auckland 2004
Yellow Pages

Disruptive Technology



Biggest Disruptors The Last 5 Years?

Agile

Offshoring

Virtualisation

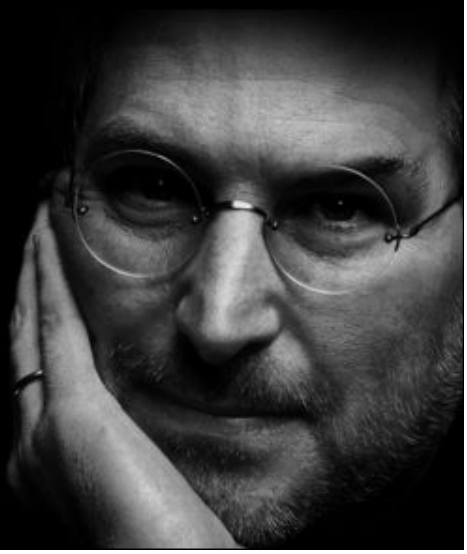
Startup

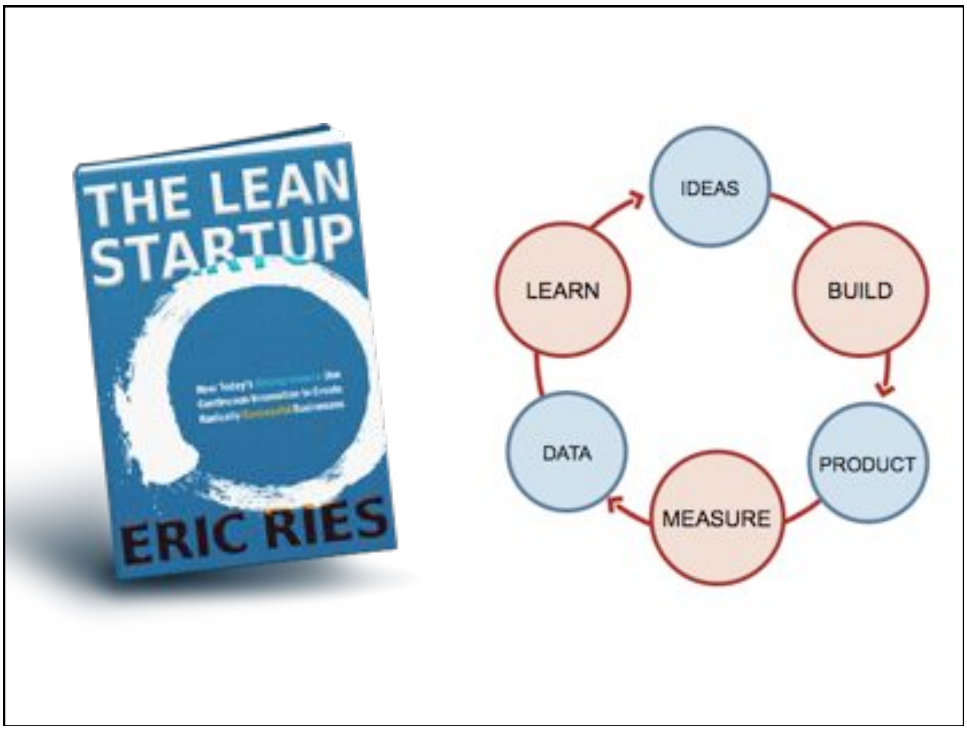
Corporate

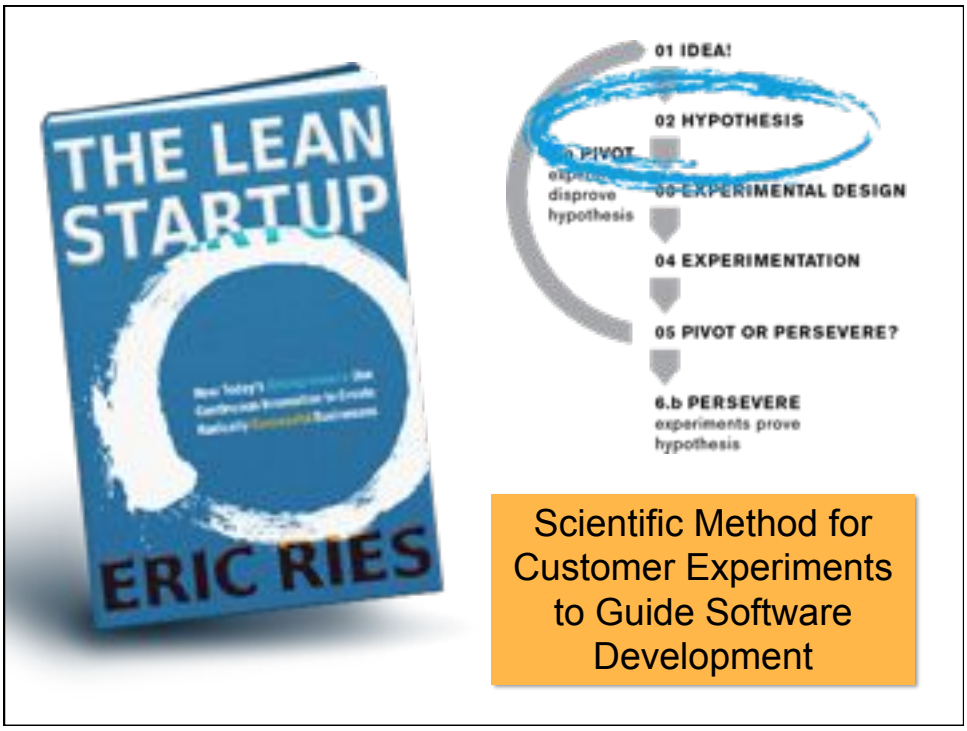
"You can't just ask customers what they want and then try to give that to them.

By the time you get it built, they'll want something new."

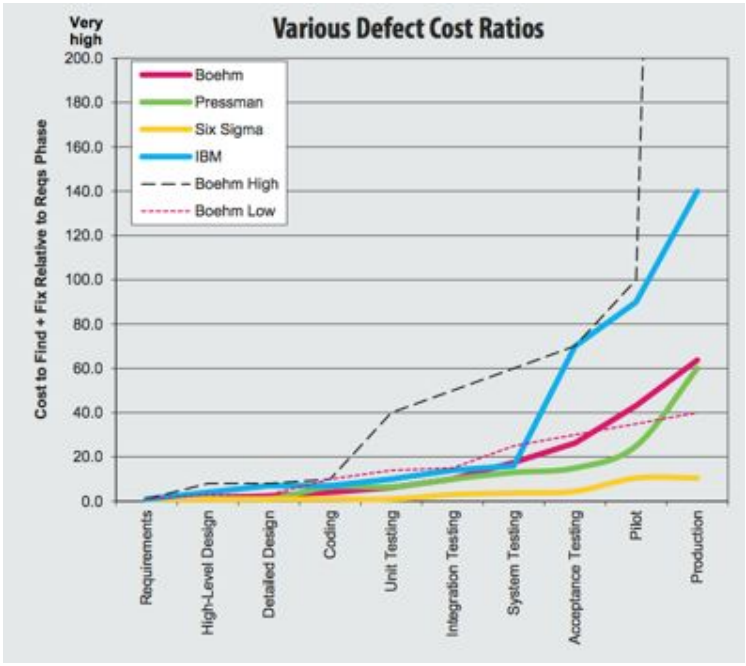
Steve Jobs

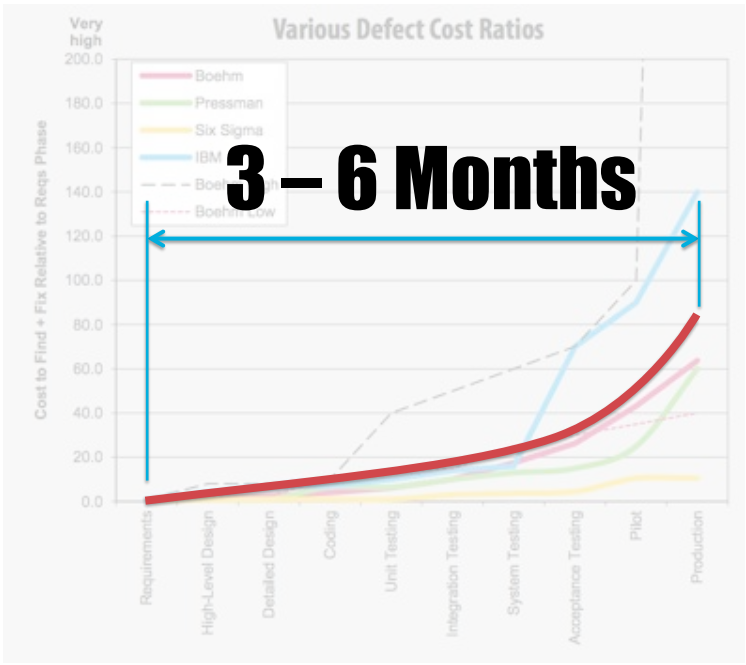



THE LEAN STARTUP
ERIC RIES
IDEAS
BUILD
PRODUCT
MEASURE
DATA
LEARN


THE LEAN STARTUP
ERIC RIES
01 IDEA!
02 HYPOTHESIS
03 EXPERIMENTAL DESIGN
04 EXPERIMENTATION
05 PIVOT OR PERSEVERE?
disprove hypothesis
6.b PERSEVERE
experiments prove hypothesis
Scientific Method for Customer Experiments to Guide Software Development

FAIL FAST


Various Defect Cost Ratios
Very high
Cost to Find + Fix Relative to Reqs Phase
200.0
180.0
160.0
140.0
120.0
100.0
80.0
60.0
40.0
20.0
0.0
Boehm
Pressman
Six Sigma
IBM
Boehm High
Boehm Low
Requirements
High-Level Design
Detailed Design
Coding
Unit Testing
Integration Testing
System Testing
Acceptance Testing
Pilot
Production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High-Level Design
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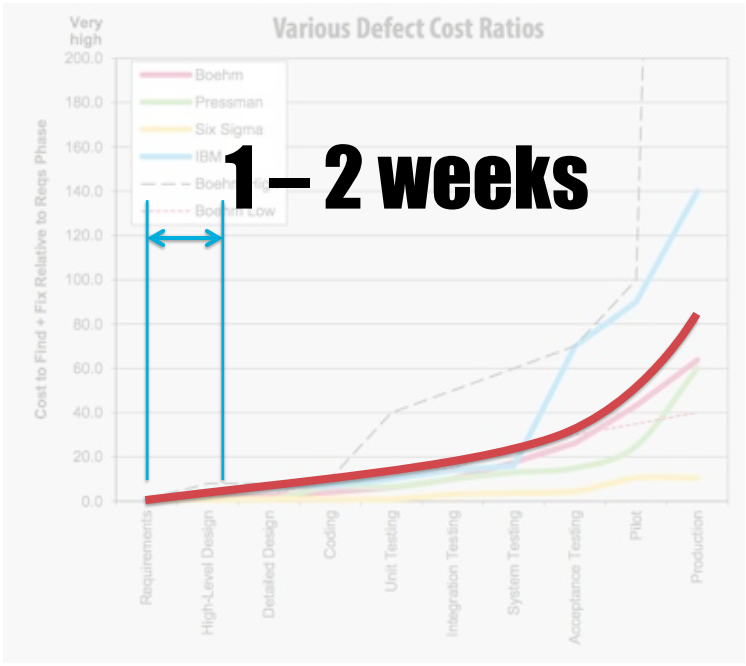
Acceptance Testing
Pilot
Production
3 – 6 Months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IBM
Requirements
High-Level Design
Detailed Design
Coding
Unit Testing
Integration Testing
System Testing
Acceptance Testing
Pilot
Production
1 – 2 weeks

SPEED
is the new black

Scope
Quality
Time
Cost

Scope
ality

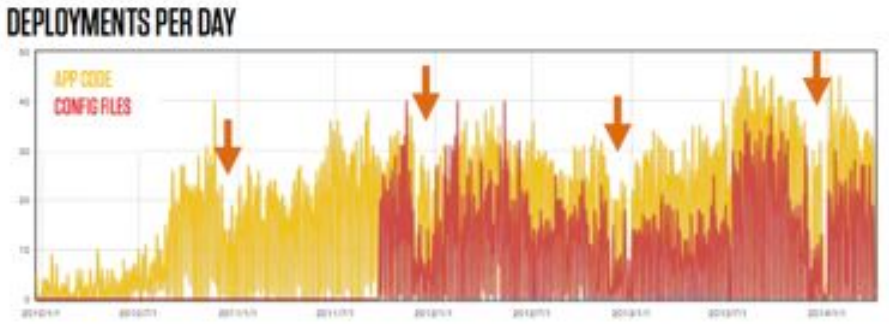
DEV
OPS

CI Continuous Integration

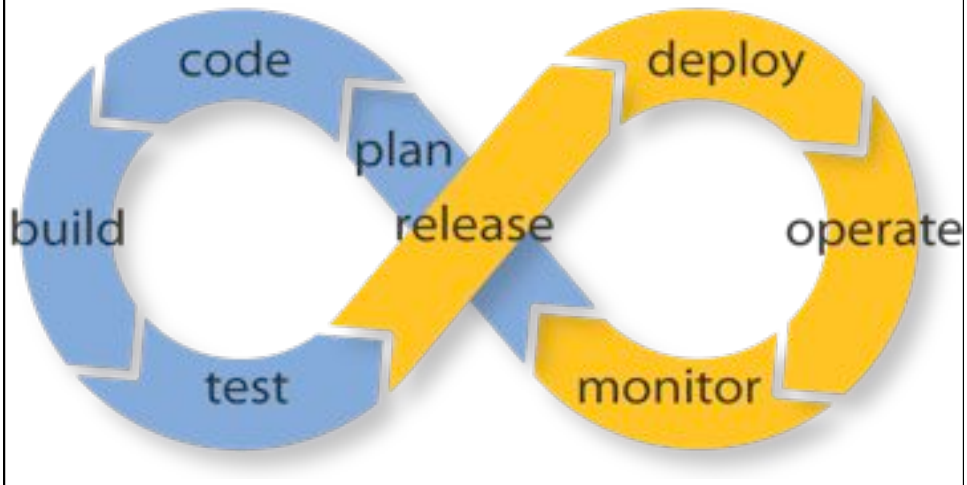
CD Continuous Deployment

CD Continuous Delivery

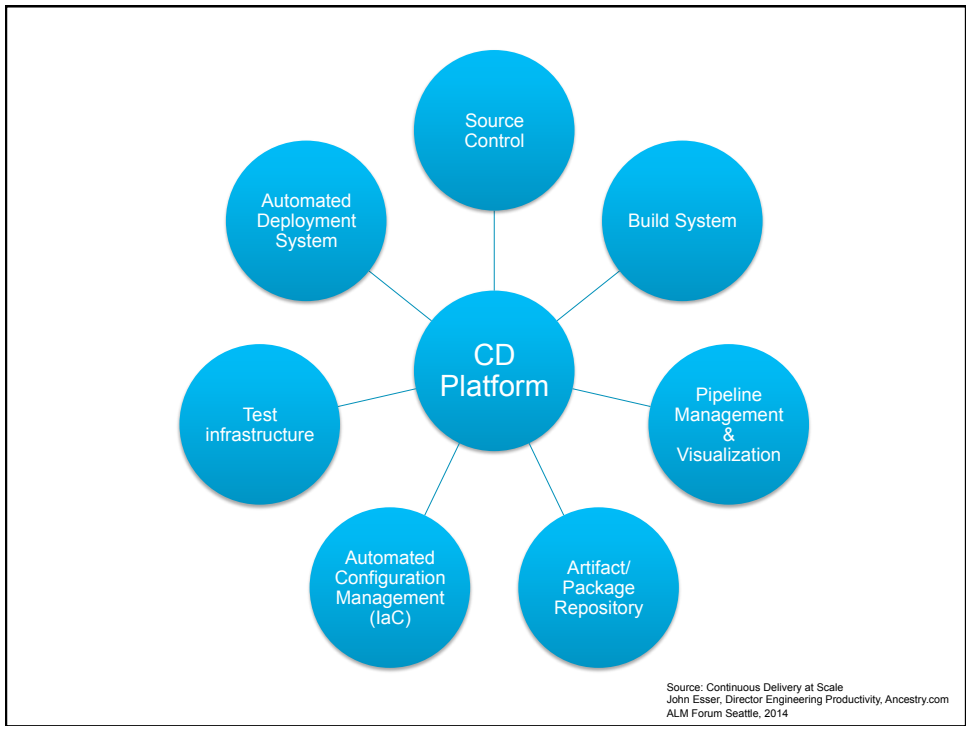
Rapid Releases



Source: Principles and Practices in Continuous Deployment
Mike Brittain,Engineering Director, Etsy @mikebrittain mikebrittain.com/talks



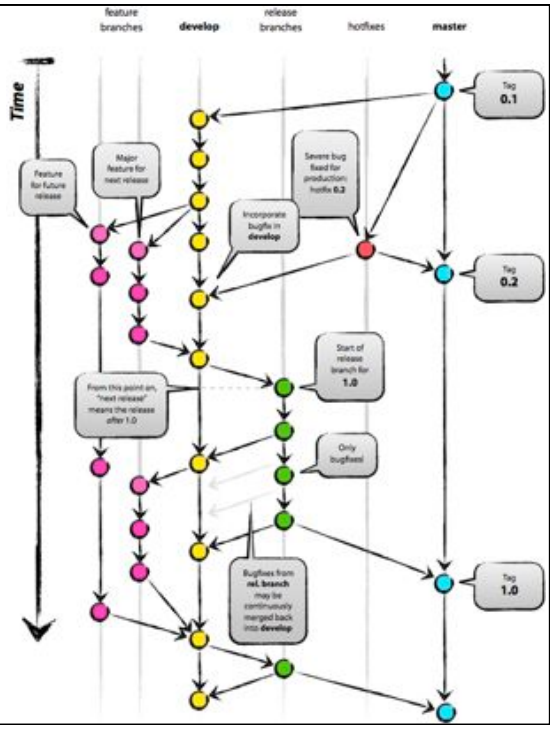
Source: http://readwrite.com/2014/01/01/three-reasons-your-startup-needs-devops-or-else



Source: Continuous Delivery at Scale
John Esser, Director Engineering Productivity, Ancestry.com
ALM Forum Seattle, 2014

Version & Configuration Management

Git Flow



Version Everything

Test Data

Static Data

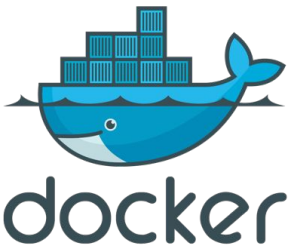
Application Code

Infrastructure

Data Versioning

LIQUIBASE

Infrastructure/Platform Versioning



New Strategies

- Duplicate test environments
- Copy of production
- Grid based test automation
- Blue/Green Deployments
- Resilience testing

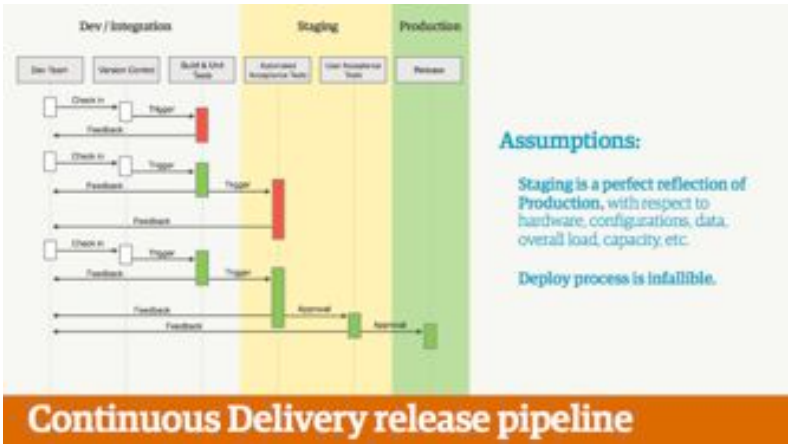
Simian Army Projects

- Chaos Monkey
- Chaos Gorilla
- Chaos Kong
- Janitor Monkey
- Doctor Monkey
- Compliance Monkey
- Latency Monkey
- Security Monkey

Elastic Computing

Which is better?

Release Pipeline



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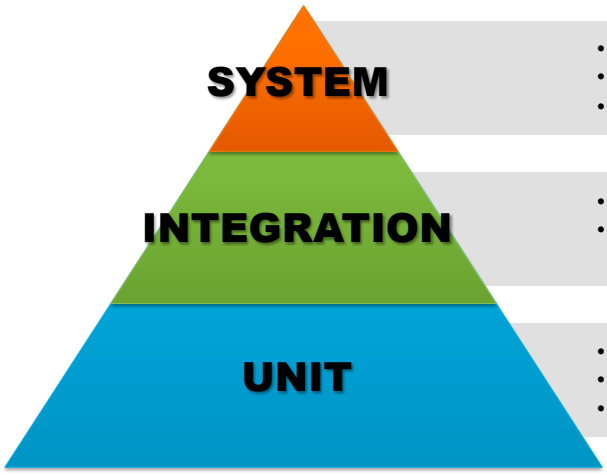
Testing Pyramid – Right Way

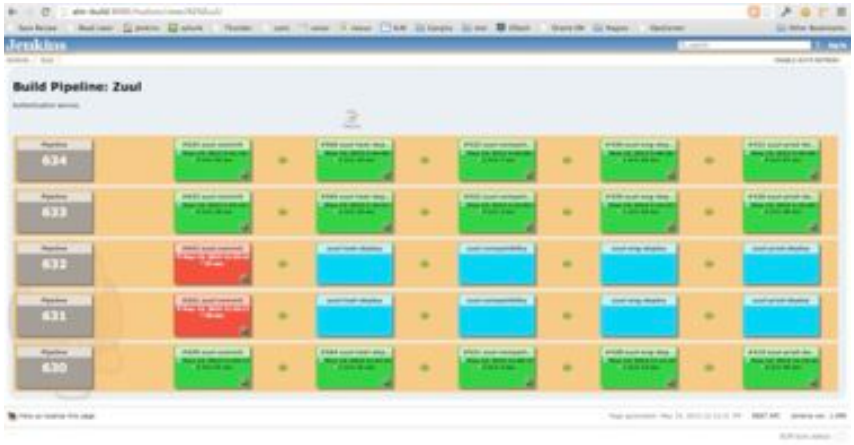


- Slower
- UI focused
- Later in the processes

- Focused on linkages
- Harnesses, Mocks and Stubs

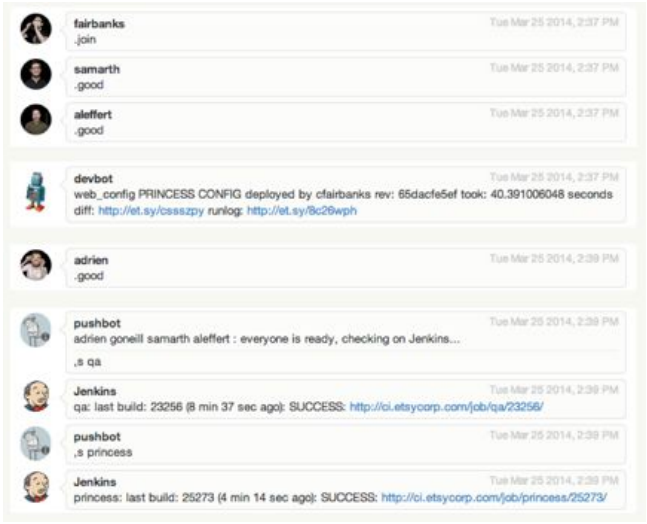
- Fast
- Isolated
- Aligned with Code

Release Pipeline



Source: Steve Neely,
sneely@rallydev.com @stenvoon http://bit.ly/cdpaper
ALM Forum Seattle, 2014

Deployment Gating



Source: Advanced Topics in Continuous Deployment
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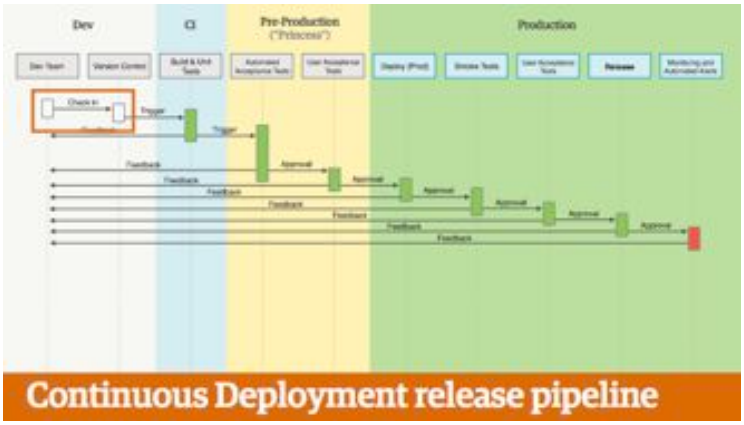
Production Testing



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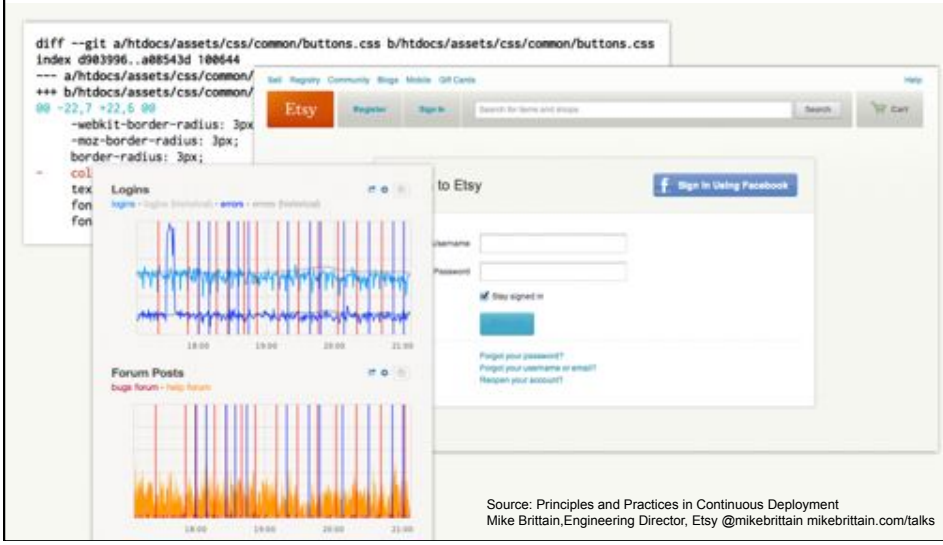
Failure Monitoring



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FAIL FAST

FAIL FAST

MTBF ✗

FAIL FAST

MTTR ✓

Customer Testing

Testing In The Wild

uTest Applause
Crowdsourced QA for app developers

What do Your Website Visitors Really Think?
find out fast with
UserTesting.com

The world's best applications pass the test of real-world success.
Fn Functional Sc Security Ld Load Ux Usability Ln Localization

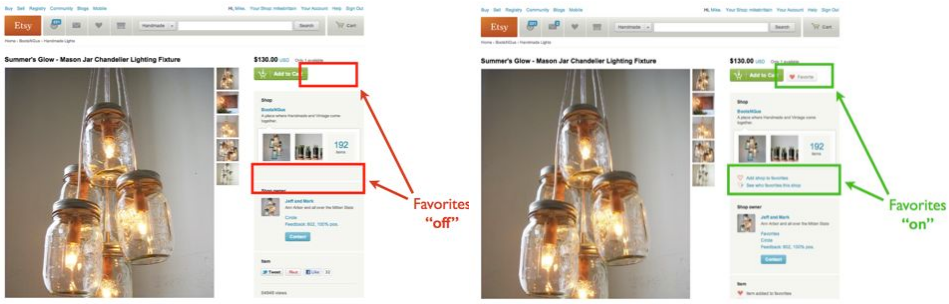
Secured $80m in VC funding

AUSTRALIAN MADE
Bugwolf

Elastic Resourcing

Which is better?

A / B Tests



E.g.“Google Analytics Content Experiments”

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Feature Toggles

Feature Toggles

```
$cfg['new_search'] = array('enabled' => 'on');
$cfg['new_search'] = array('enabled' => 'off');

// or...

$cfg['new_search'] = array('enabled' => 'staff');

// or...

$cfg['new_search'] = array('enabled' => 'users',
                           'user_list' => 'mike,john,kellan');

// or...

$cfg['new_search'] = array('enabled' => '1%');
$cfg['new_search'] = array('enabled' => '5%');
$cfg['new_search'] = array('enabled' => '11%');
```

https://github.com/etsy/feature

Source: Advanced Topics in Continuous Deployment
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Feature Toggles

Progressive Delivery To Minimise Risk

Source: Advanced Topics in Continuous Deployment
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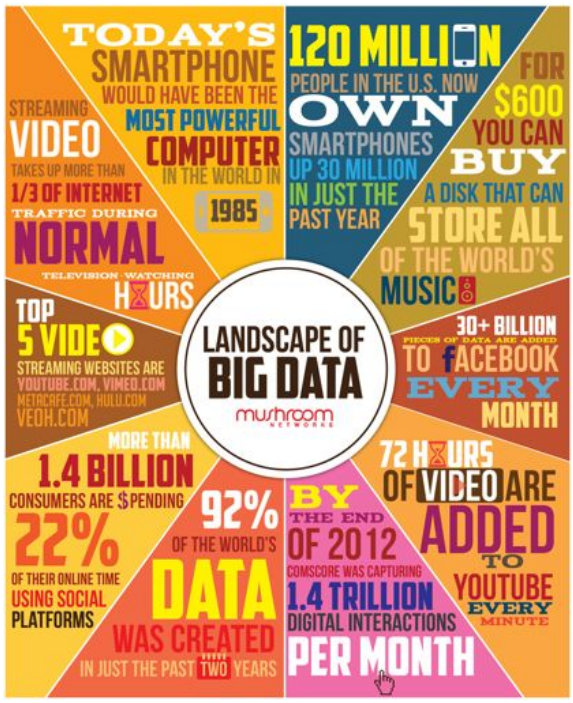
BIG DATA

Volume

Velocity

Variety



How To Test Prediction

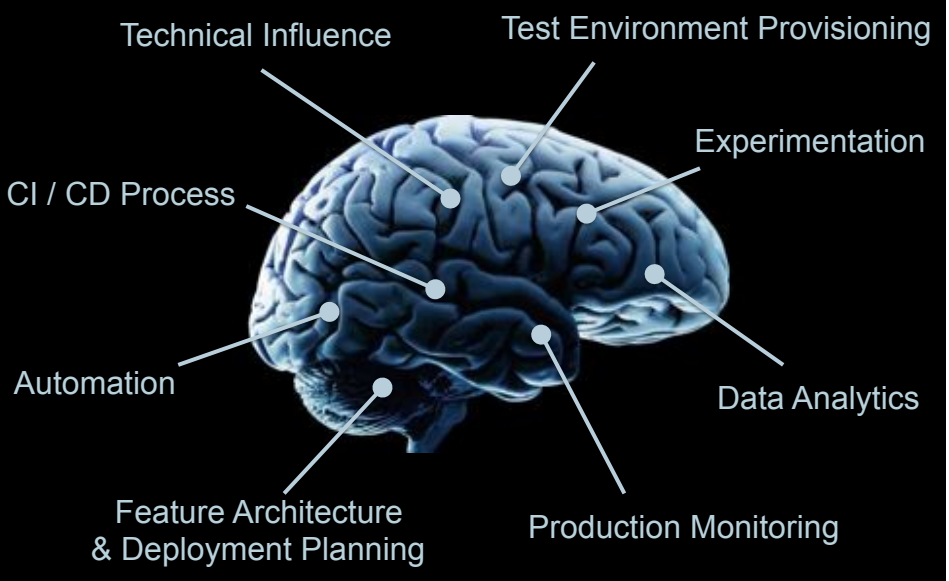
Big Data Challenges

Staging test data sets
Test data privacy
Variation of test data sets
Production data variability
Controllability & Observability

Algorithm Evaluation
Heuristic Testing
Exploratory Testing

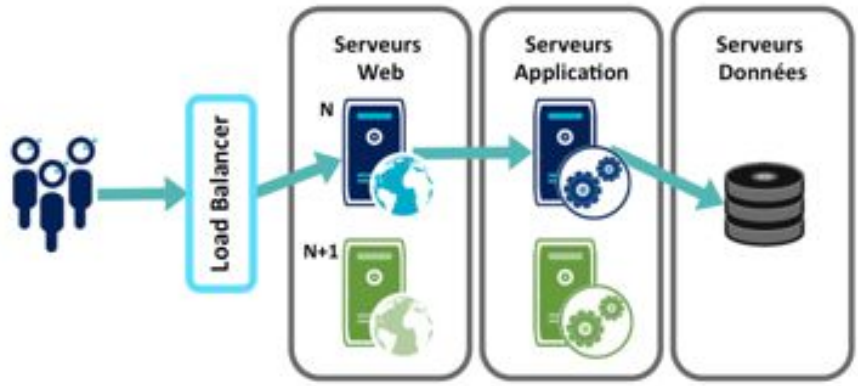
A/B Testing
Customer Sampling &
Monitoring

New QA Skills



Canary Releasing

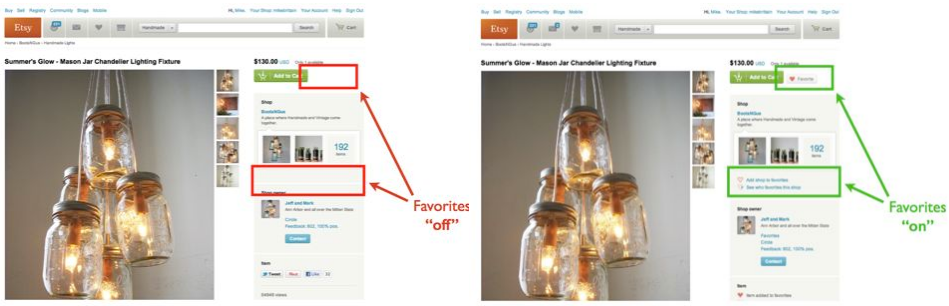
Blue Green Deployments



Feature Toggles

Feature Flippers

A / B Tests



E.g."Google Analytics Content Experiments"

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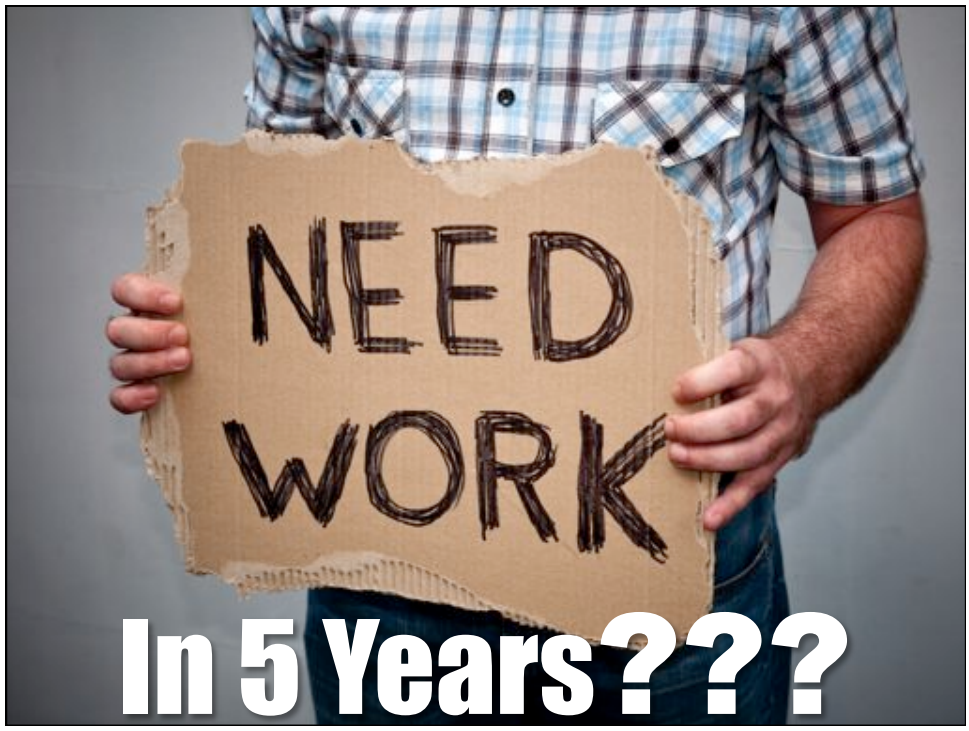
Dark Launch

BACK
TO THE FUTURE
™

BACK
TO
THE FUTURE


NEED
WORK
In 5 Years???

Skill Changes

DevOps Teams

Embedded, Self Organising, Functional

Business Tester
Automated Tester
DevOps Tester

Non-Technical
Functional Tester

Reduced Test Management

Coordinate Resourcing
Practice Support
Consultants
Coaches
Governance

Test Managers
Test Leads

- **Crowd Test Coordination**
- **Customer Test Coordination**
- **Feature Deployment Planning**
- **User Experience and Failure Monitoring**

Q&A