

# Quality Assurance in a DevOps World

## Enabling Trust



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# DevOps is an ecosystem of...

- **People** (relationships)
- **Processes** (activities)
- **Product(s)**

# Ecosystem...

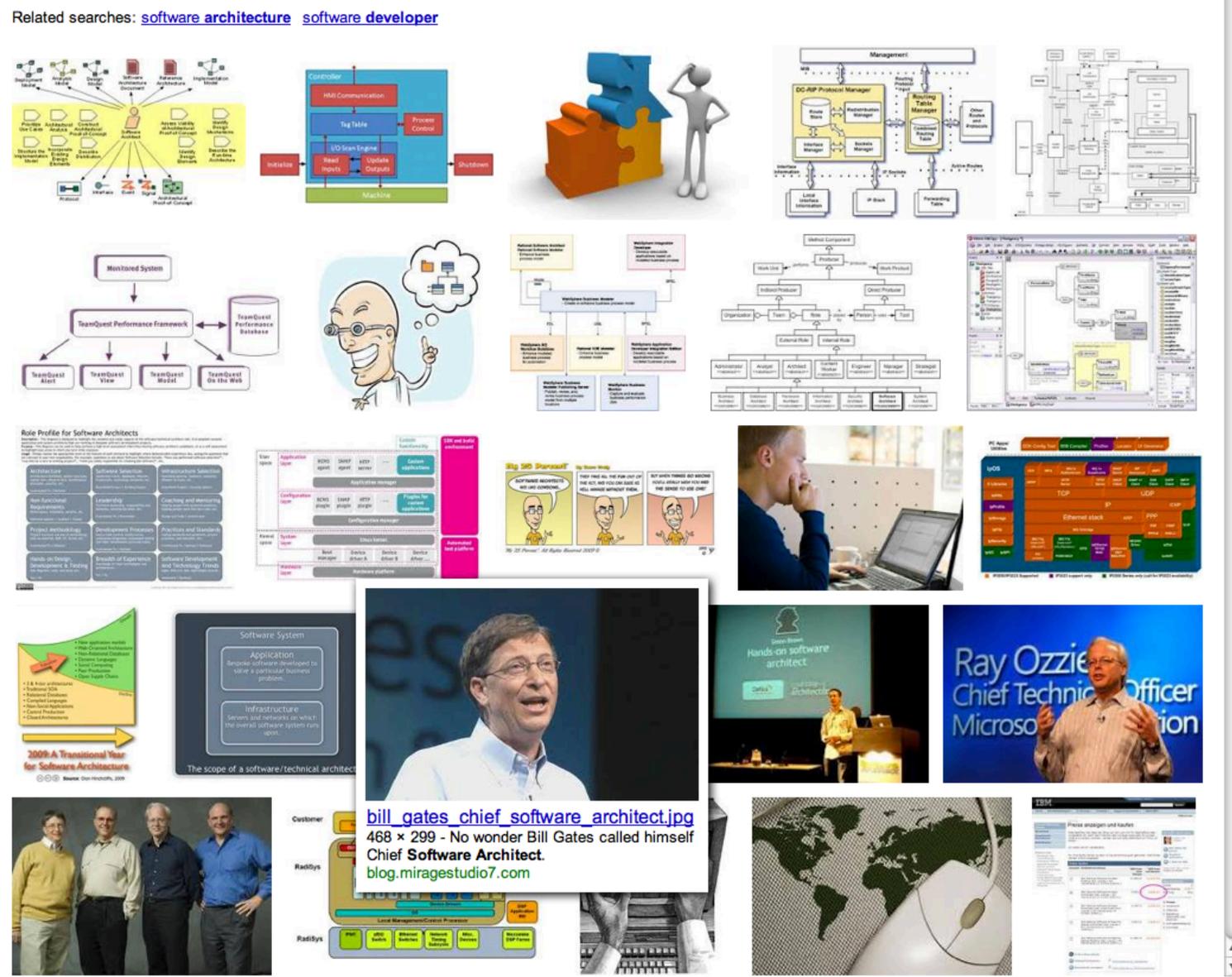
- Applied on top of columnar organizations:
  - Development/SW eng./design/etc.
  - Quality assurance/testing/delivery
  - Product eng./operations/customers

# Current DevOps thinking is...

- aligned with the Agile Manifesto,
- and prescribes itself as a **Cultural** (organizational) and **Professional** (personal) movement

Google **software architect** Search SafeSearch moderate  
 About 5,820,000 results (0.35 seconds) Advanced search

- Everything
  - Images**
  - Videos
  - News
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  - More
- Any size  
 Large  
 Medium  
 Icon  
 Larger than...  
 Exactly...
- Any type  
 Face  
 Photo  
 Clip art  
 Line drawing
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 Full color  
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 Show sizes





software developer Search

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- Full color
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- 
- Standard view**
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# Software Development

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system administrator

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Advanced search

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Everything

Images

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Face

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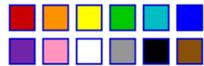
Clip art

Line drawing

Any color

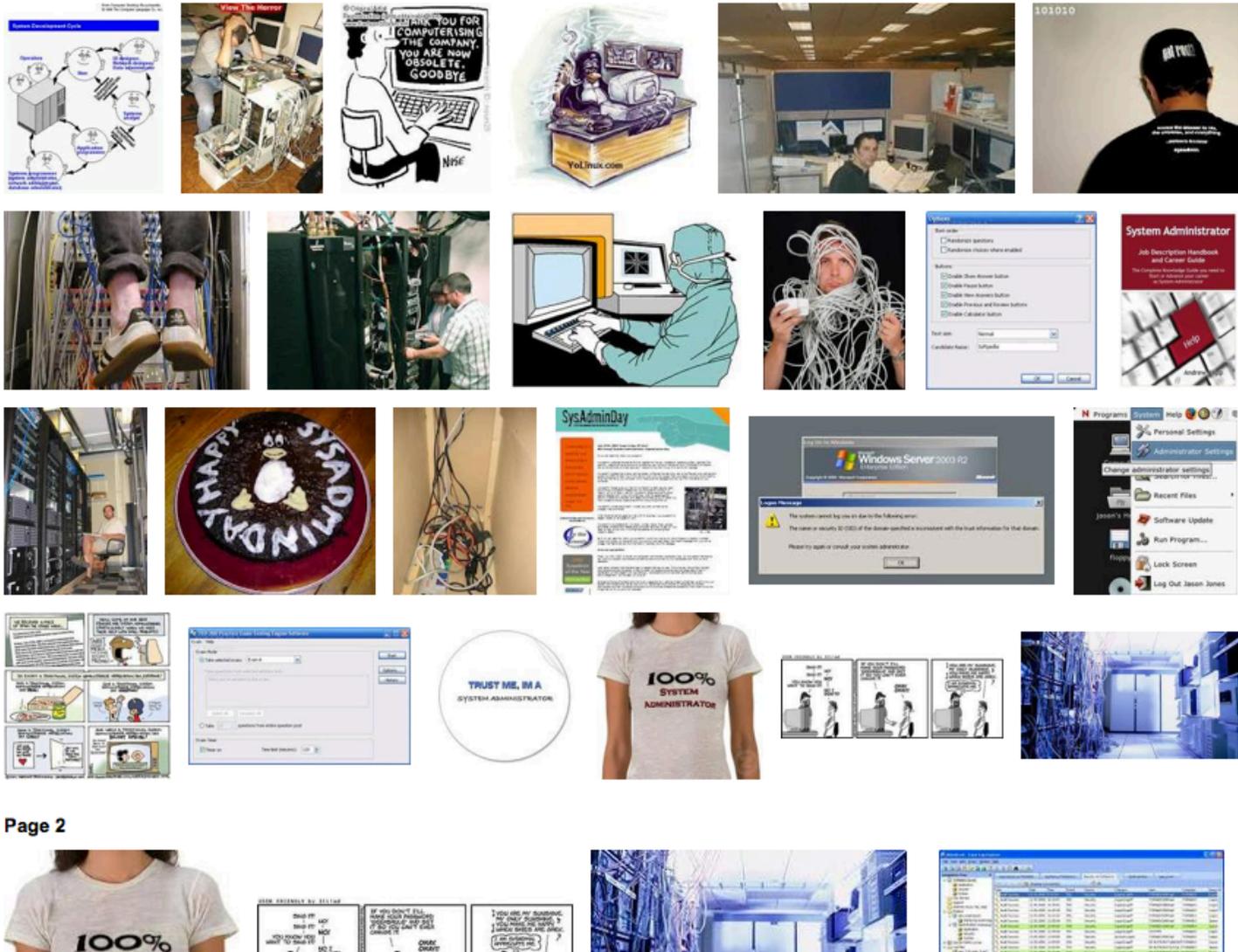
Full color

Black and white



Standard view

Show sizes



Page 2

# Trust is the cornerstone...

- Patrick Debois' math - based on Covey's "4 Cores":
- **trust** =  $f(\text{character}, \text{competence})$
- **character** =  $f(\text{integrity}, \text{intent})$
- **competence** =  $f(\text{capabilities}, \text{results})$

# Trust is a QA deliverable...

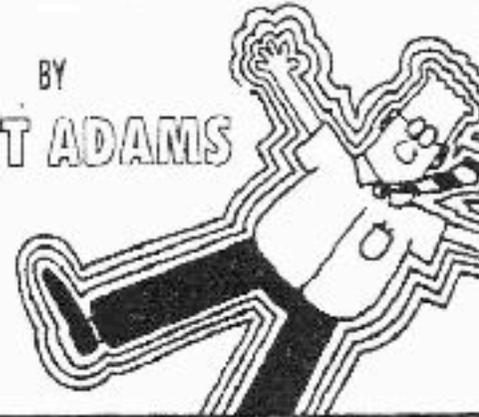
- **Results** are the indicator
- **Testing** is the apparatus
- **Proof** of quality is the target

RATBERT, MY COMPANY IS HIRING FOR OUR QUALITY ASSURANCE GROUP. YOU'D BE PERFECT.



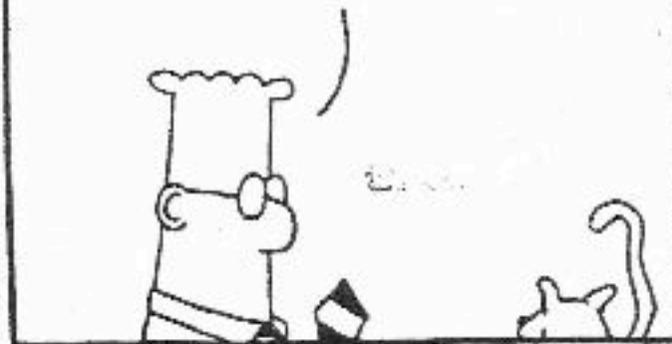
# DILBERT<sup>®</sup>

BY  
SCOTT ADAMS



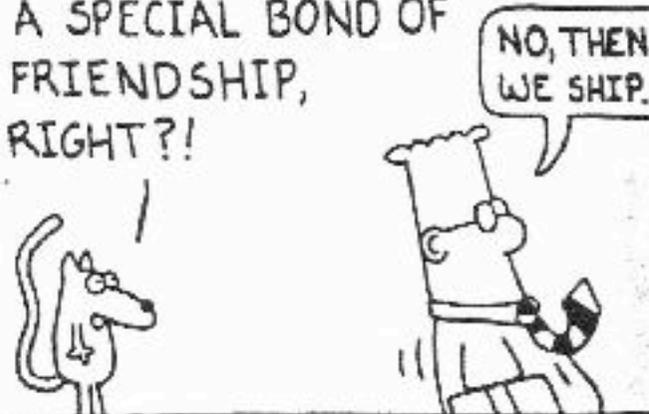
YOU WOULD FIND FLAWS IN OUR NEW PRODUCT, THUS MAKING YOURSELF AN OBJECT OF INTENSE HATRED AND RIDICULE.

S. Adams E-mail: SCOTTADAMS@AOL.COM

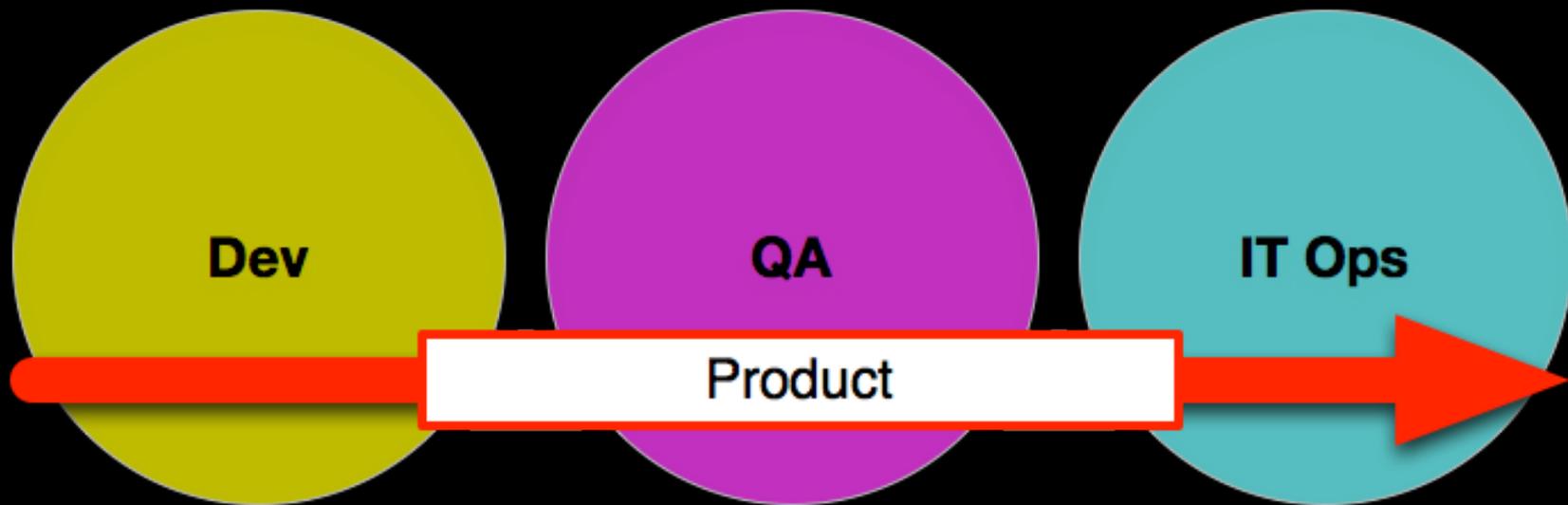


BUT THEN YOU'D FIX THOSE FLAWS... AND YOUR RESPECT FOR ME WOULD GROW INTO A SPECIAL BOND OF FRIENDSHIP, RIGHT?!

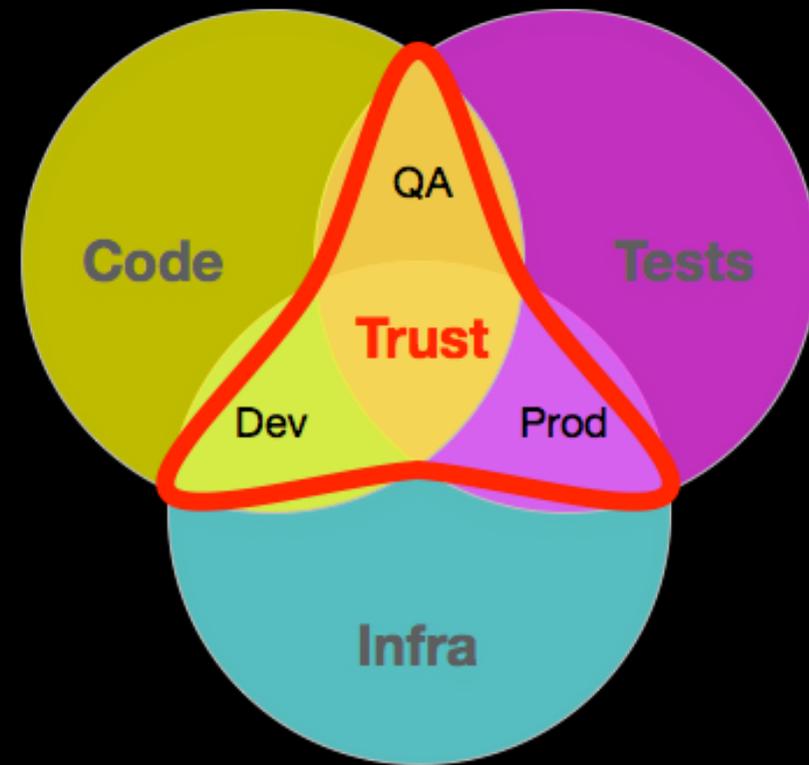
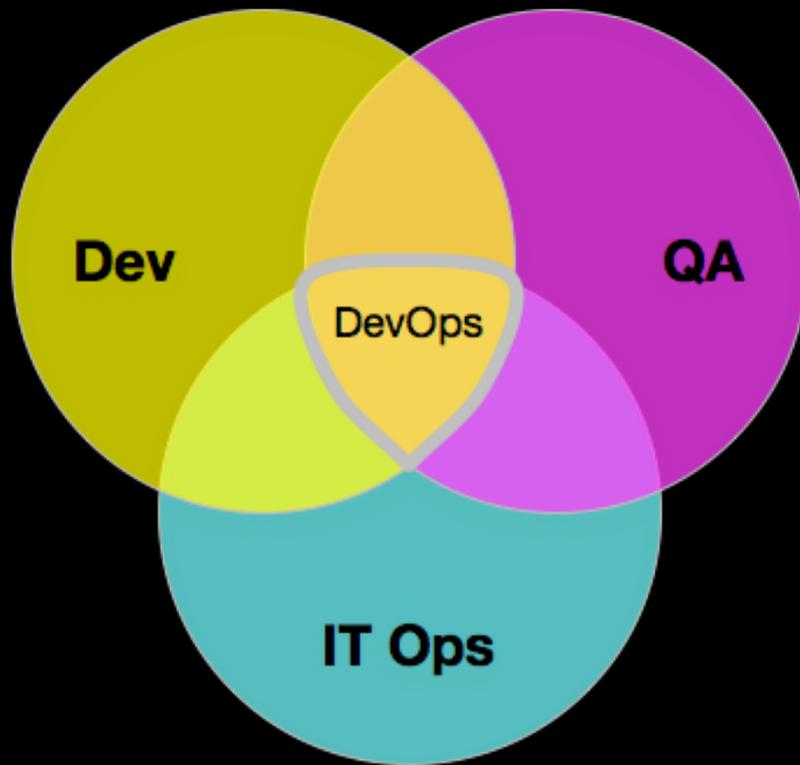
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# The Continuum (borked)

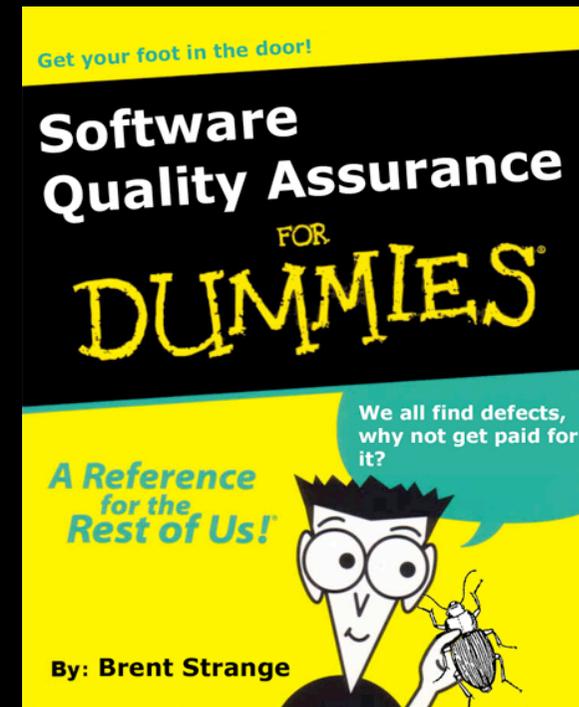


# Proof == Trust



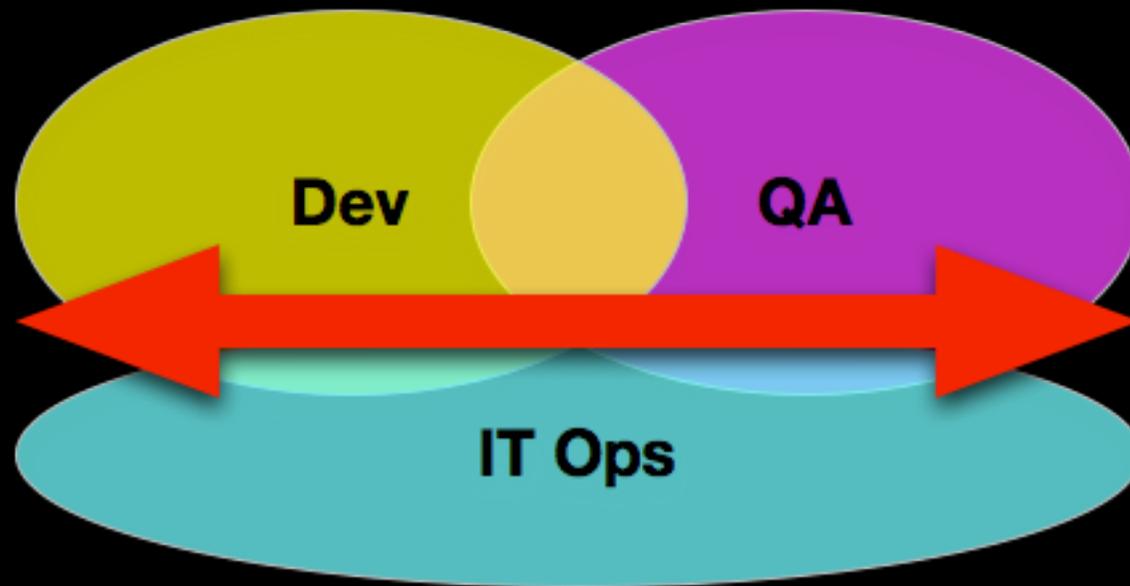
# Quality Assurance

- Product Control
  - Requirements
  - Change
  - Release



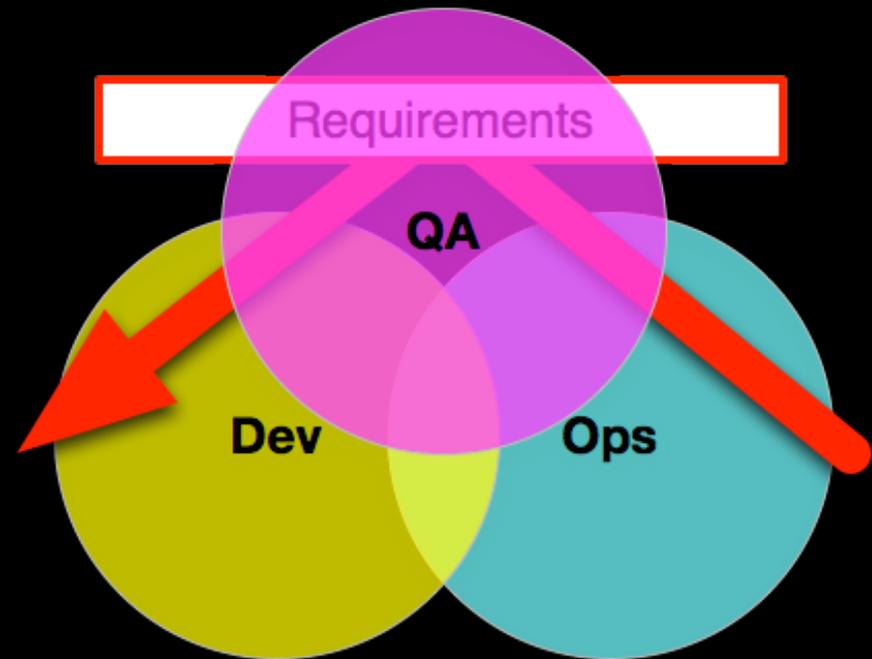
- Catch “bugs” before presentation
  - Functional AND Non-Functional

# Bi-Directional (required)

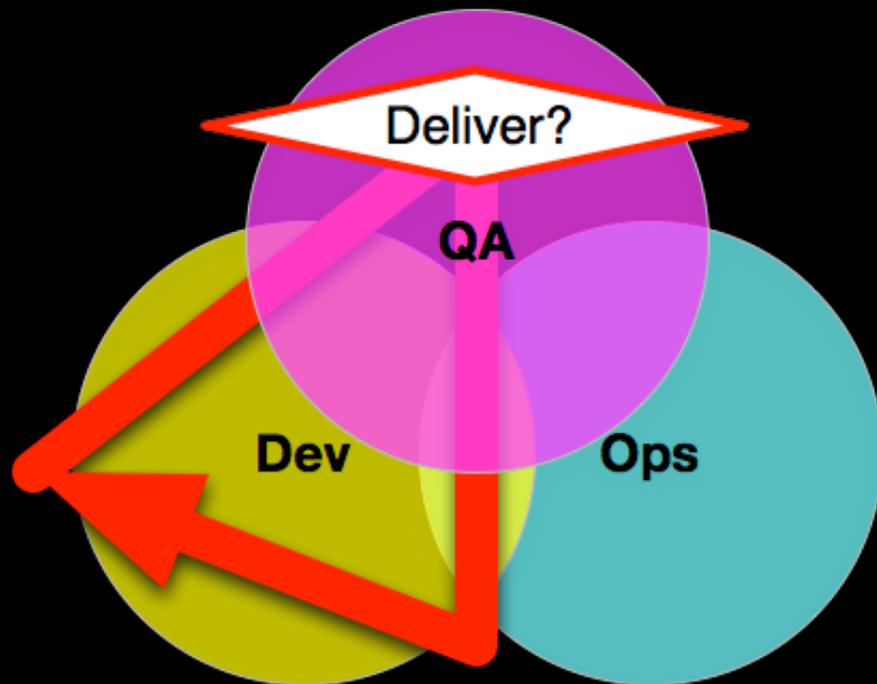


# QA Frontend

- Agile
  - QA/Testers on team
  - Stories -> UAT
  - Continuous Integration



# QA Backend



- Test harness(es)
  - Integration
  - Functional
  - Non-functional

# QA's DevOp Priorities

- Testing must be a first-class citizen



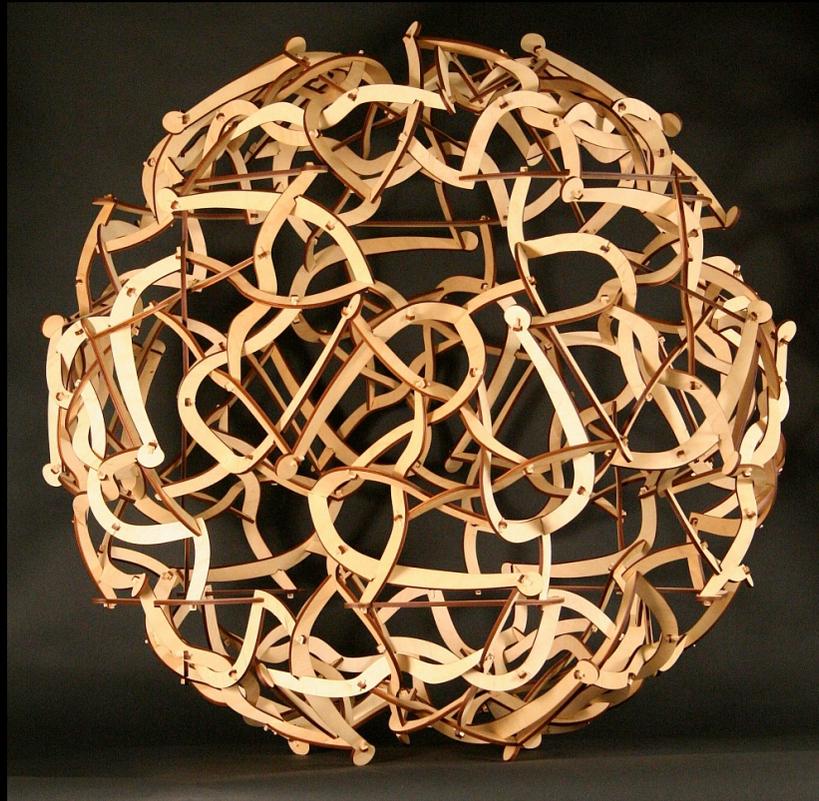
# QA's DevOp Priorities

- Testing must be a first-class citizen

**“We’re not worried about testing...our biggest problem is automating deployment”**

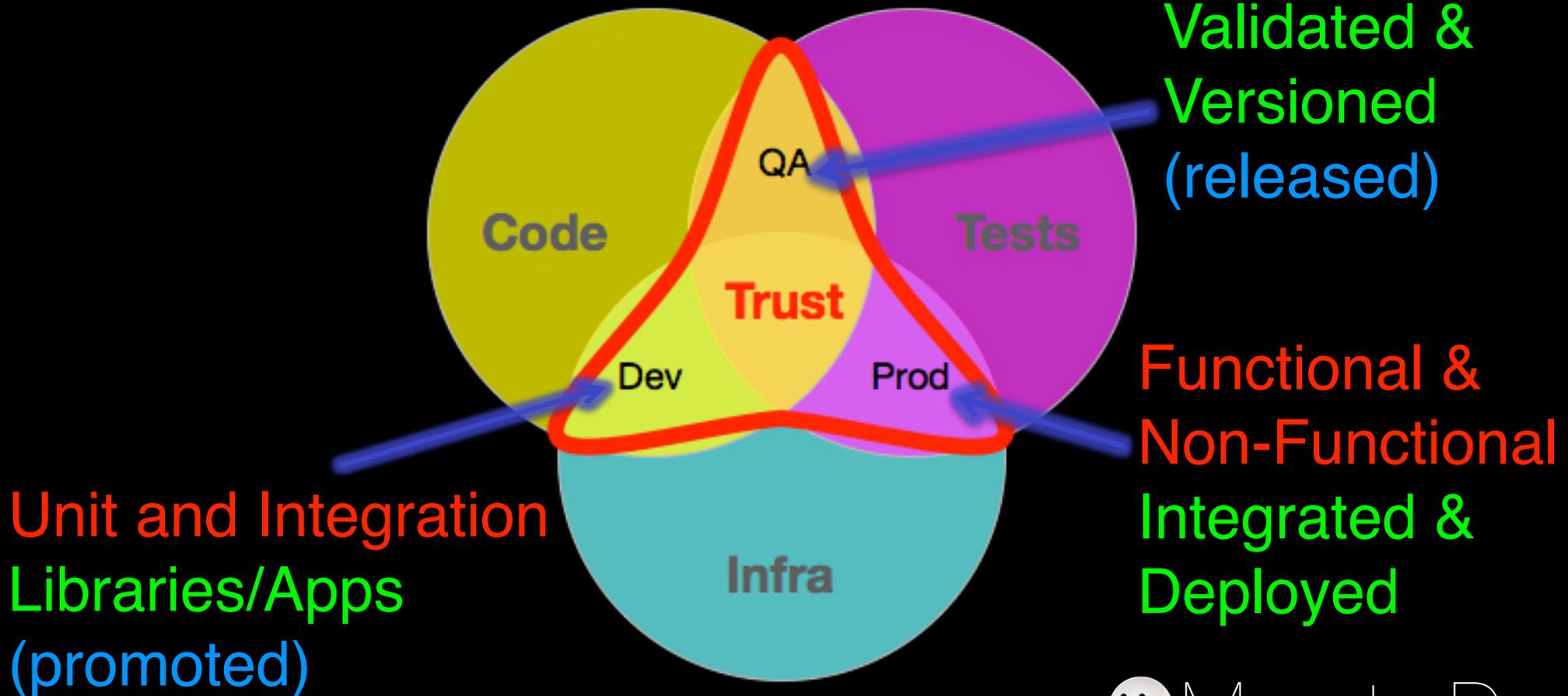
# QA's Priorities (cont.d)

- Release management

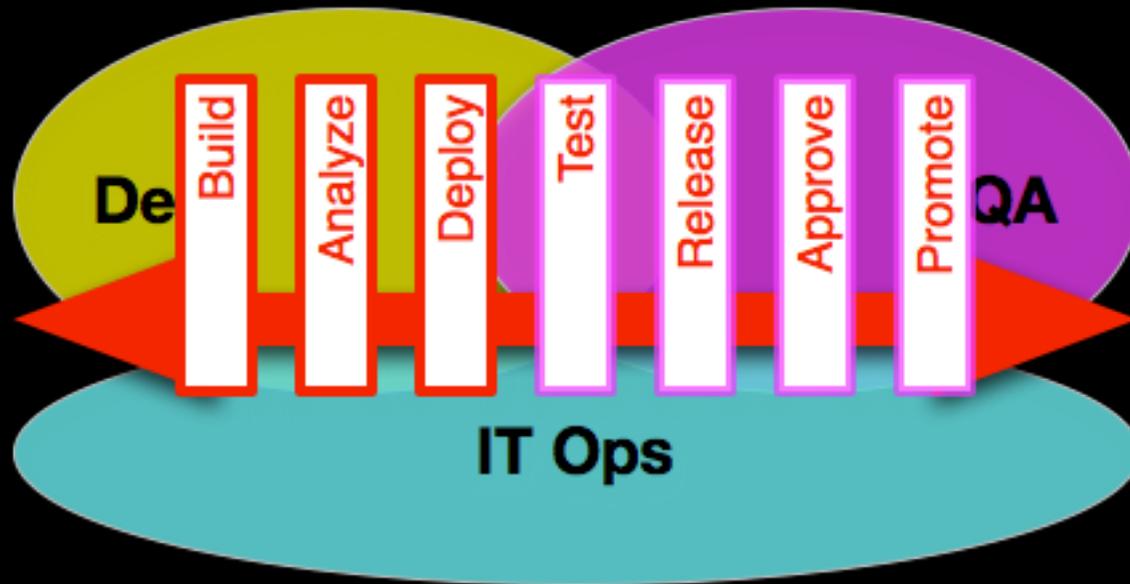


# Driving Trust via Releases

- Proof (Testing)



# Dev-QA-Ops Choreography



# Push QA into Ops and Dev

- \*DD
  - Behavior DD (Agile QA?)
  - Pulls non-functional from Ops
  - Pushes non-functional to Devs
- Less Unit, Mo Integration, Less Mock
- Automate functional, but to a point
- Ops and QA enable Dev testing

# Push QA into Ops and Dev

- \*DD

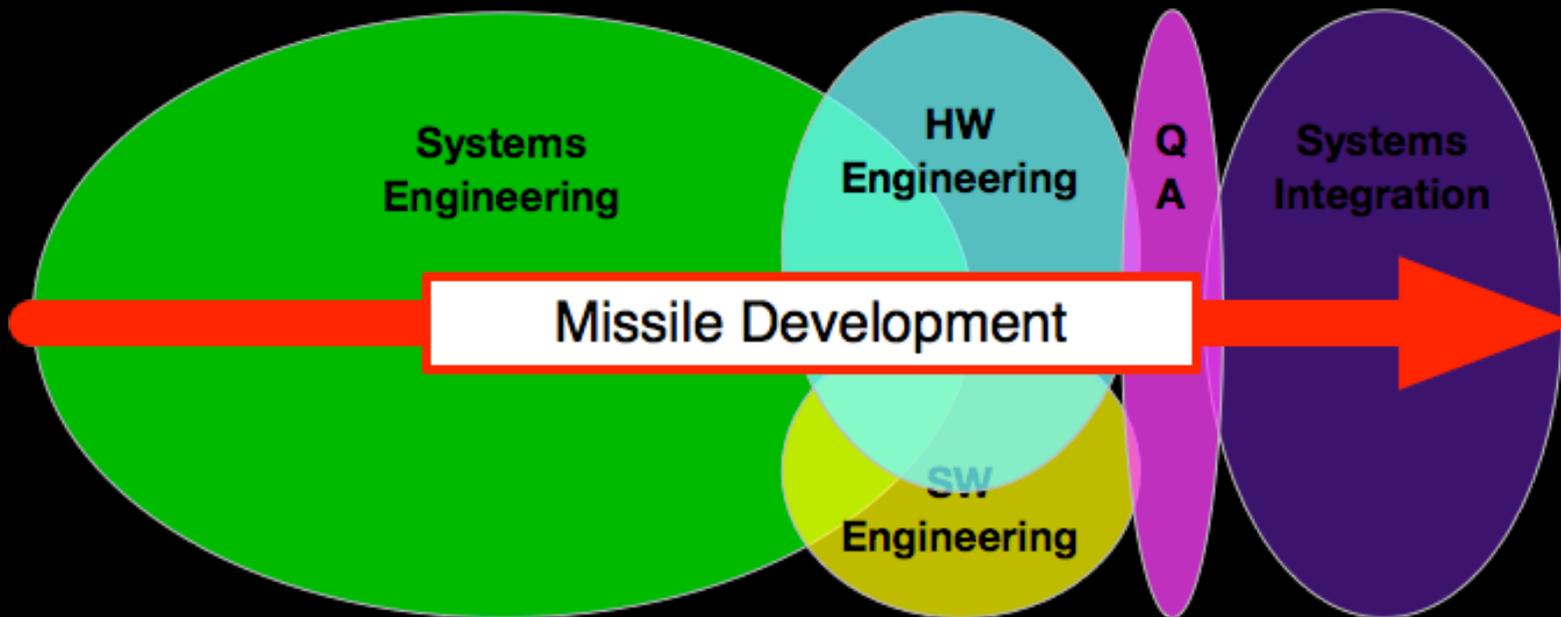
– Behavior DD (Agile QA?)  
– Pulls non-functional from Ops  
– Pushes functional into Dev

**“BDD has reduced our prerelease bugs by 80%, in a side-by-side comparo”**

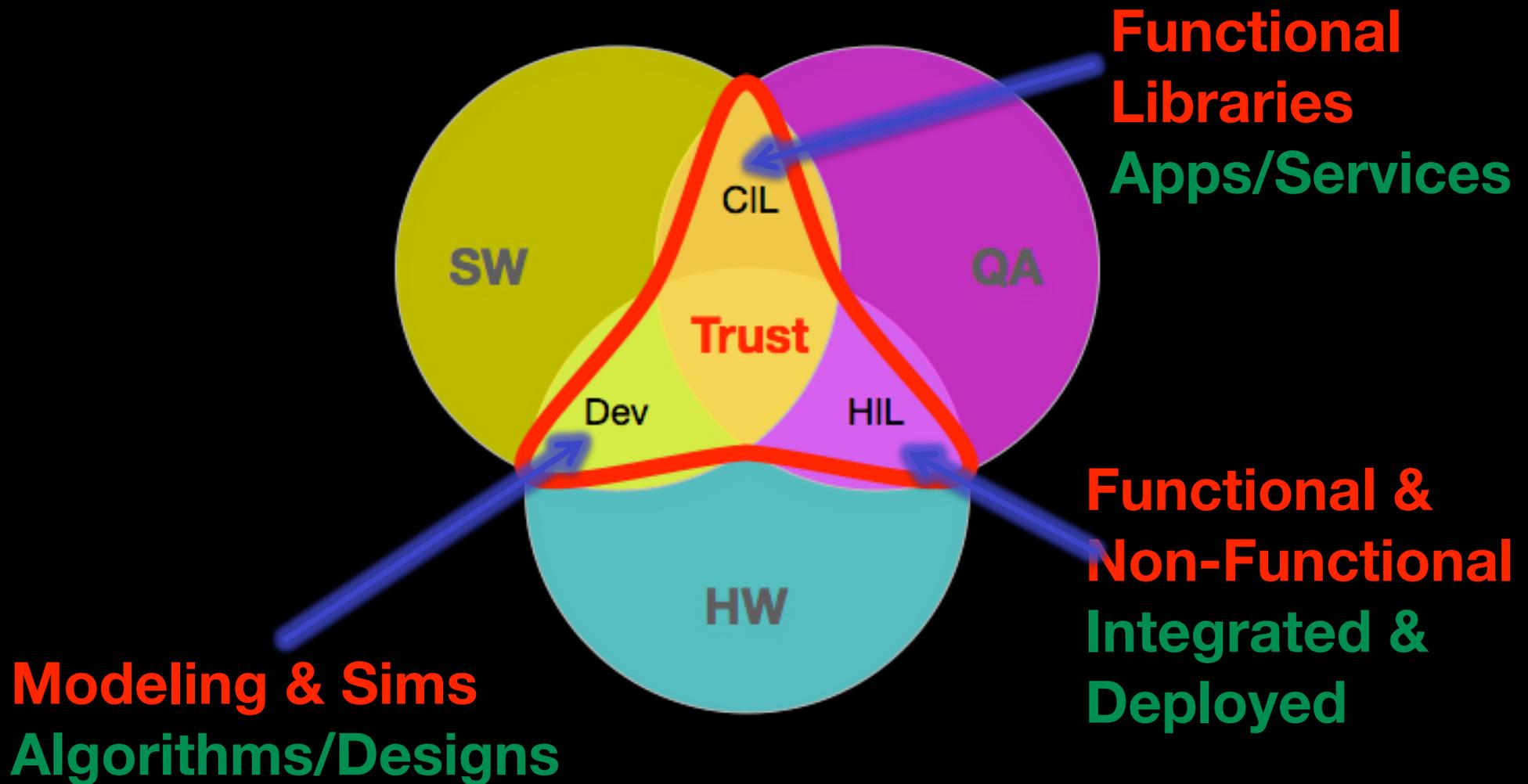
- Less Unit, Mo Integration, Less Mock
- Automate functional, but to a point
- Ops and QA enable Dev testing

# Alternative Perspective

- Building missiles
  - Platform shall have a maximum range of 100km



# Validation and Verification



# Quality Quality

- Tests must be good
  - More to it than just assertions
- True negatives? False Positives?
  - Testing for Failure
- Brittle Tests? Avoid testing content
- Changes should come with tests  
(open sourcey way)

# Truth isn't Good Enough

- Regressions (read blame)
  - A single version change affects truth
- Measuring/Monitoring
  - Earlier the better
- Trending (continuous improvement)
  - Continuous improvement

# Dev/QA Reporting

Version 0.9.16-SNAPSHOT on Apr. 5, 2009 00:55, using profile [Nemo rules with findbugs](#).

**Lines of code** 12'545 ▲  
72 packages  
430 classes ▲  
2'130 methods ▲

**Comments** 39.1%  
8'053 lines ▲

**Duplications** 1.5%  
310 lines  
8 blocks  
8 files

**Complexity** 2.3 /method  
11.2 /class  
4'813 decision points ▲

**Rules compliance** 82.4%

**Violations** 735 ▲  
Efficiency  
Maintainability  
Portability  
Reliability  
Usability  
 include opt. rules

**Code coverage** 51.7%  
465 tests ▼  
+10 skipped  
4:13 min ▼

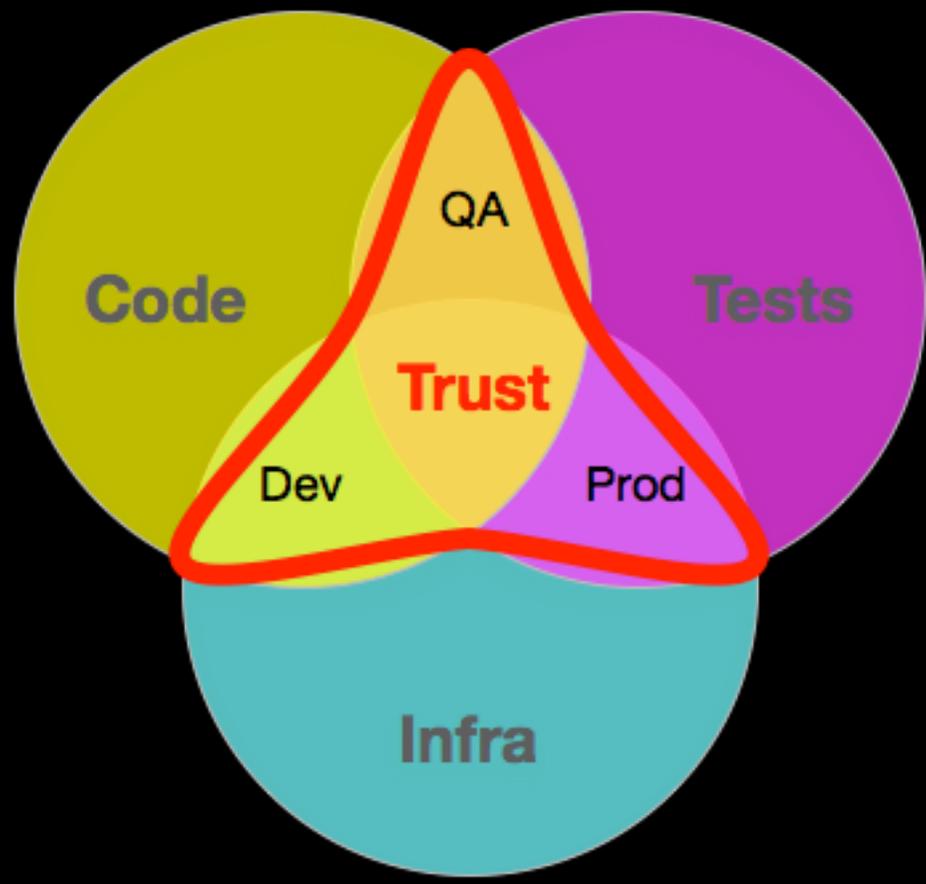
**Test success** 98.7%  
6 failures  
0 errors

**Events** All

Apr. 5, 2009	Version	0.9.16-SNAPSHOT
Feb. 15, 2009	Version	0.9.15
Feb. 11, 2009	Alert	Orange
Feb. 8, 2009	Alerts	Yellow
Dec. 28, 2008	Version	0.9.14-SNAPSHOT
Oct. 28, 2008	Version	0.9.11
Mar. 26, 2008	Version	0.9.9
Mar. 29, 2007	Version	0.9.4
Jan. 12, 2007	Version	0.8
Dec. 6, 2006	Version	0.6

Key : ch.qos.logback:logback-core  
Language : java  
[Homepage](#) [Source](#)





# DevOps



# Questions

<http://devopsweekly.com/>