

# Gain Confidence With Continuous Integration

Twin Cities Code Camp  
Spring 2012



# Agenda

- Who Am I?
- What is Continuous Integration?
- Why Should You Care?
- What Do You Need to Do CI?
- What Else Can CI Do?
- Demo
- What About Continuous Delivery?
- Questions



# Who Am I?

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blog](http://www.jpедersonconsulting.com/blog)



# What is Continuous Integration?

"Continuous Integration is a **software development practice** where members of a team integrate their work frequently, usually each person integrates at least daily - leading to multiple integrations per day. Each integration is verified by an automated build (including test) to detect integration errors as quickly as possible."

-- Martin Fowler



Why Should You  
Care?



Reduce  
rework,  
time, and  
cost



Image: 401K / <http://www.flickr.com/photos/68751915@N05/>





Image: Genista / <http://www.flickr.com/photos/genista/>

Always have working software



Find and fix  
bugs when it  
is the  
cheapest



Image: Salvatore Vuono / FreeDigitalPhotos.net



Immediate feedback  
on the system as a  
whole



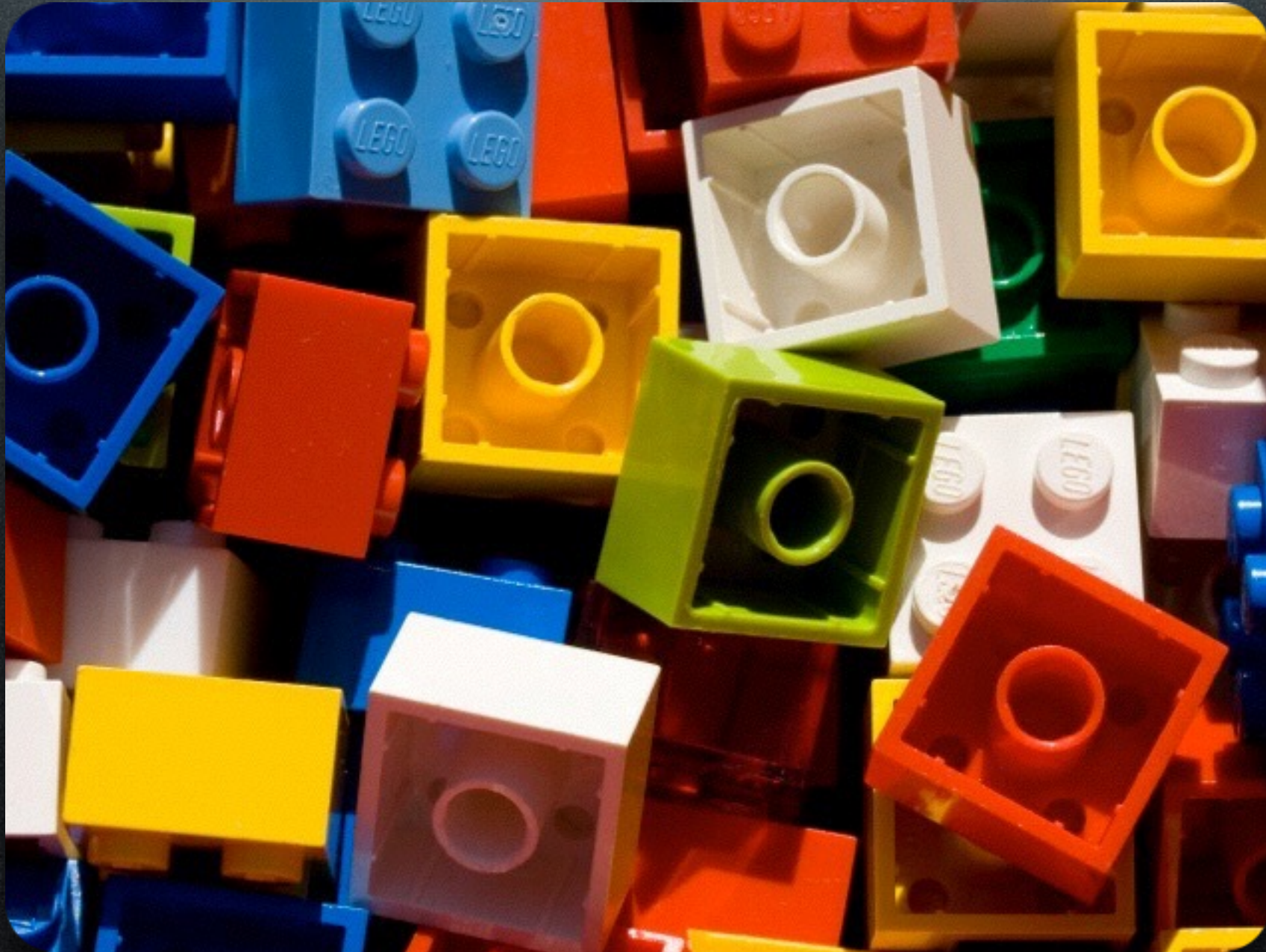


Image: woodleywonderworks / <http://www.flickr.com/photos/wwwworks/>

# Less complex, more modular code



What do you need to  
do CI?



# Version Control

(and frequent commits)



# Same Build Process for Every Environment

(even for developers)



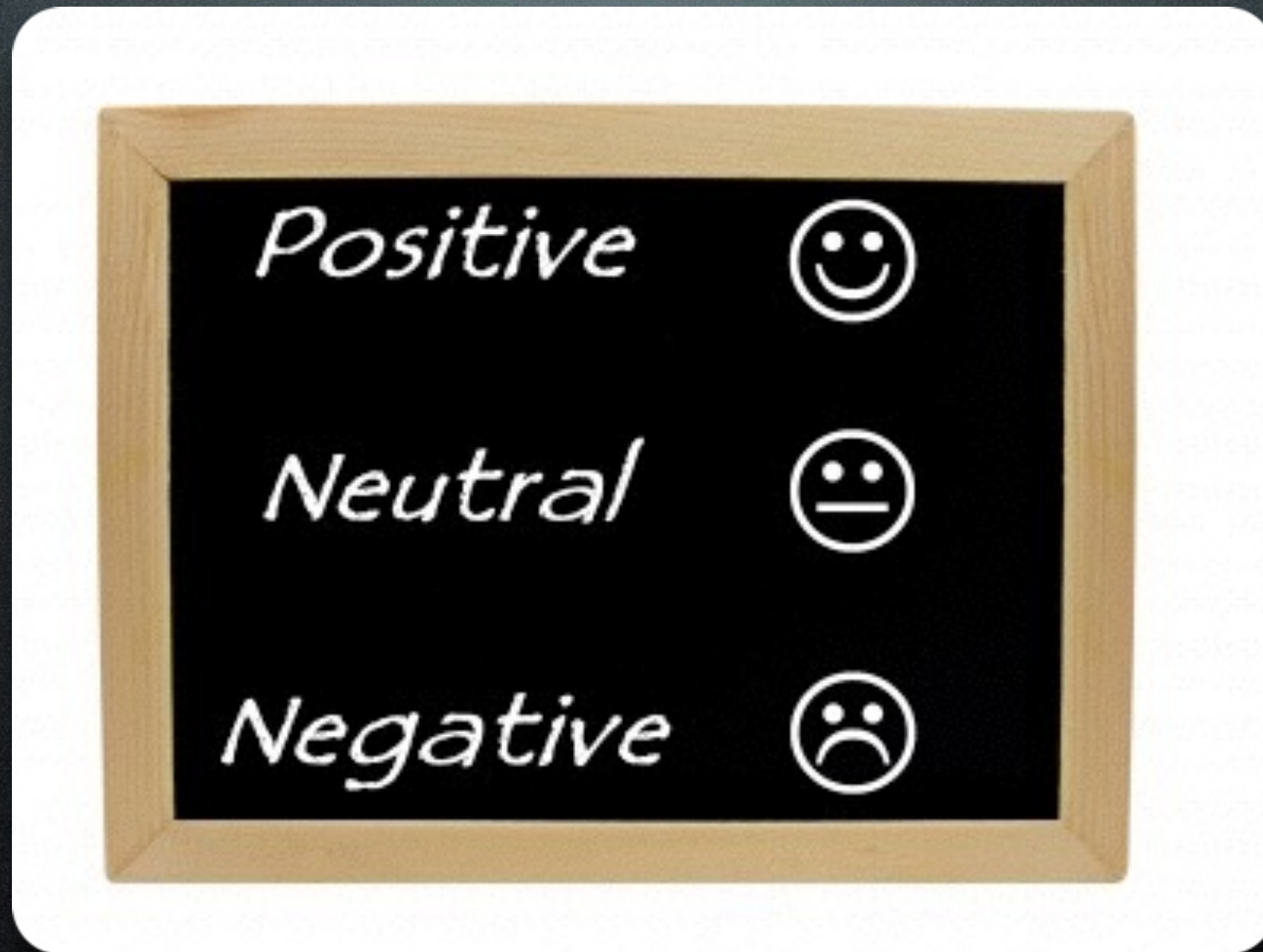


Image: Grant Cochrane / FreeDigitalPhotos.net

# Feedback





Image: Loco Steve / <http://www.flickr.com/photos/locosteve/>

# Quick Response



```

93 }
94
95 @Override
96 public void tearDown() {
97     carr = null;
98     iarr = null;
99     try {
100         FileUtils.d
101     } catch (IOExce
102         throw new R
103     }
104 }
105
106 public IOUtilsTestC
107     super(name);
108 }
109
110 public void testClo
111     Selector select
112     IOUtils.closeQu
113 }
114
115 public void testClo
116     IOUtils.closeQu
117     public void
118         throw n
119     }
120 });
121 }
122
123 public void testSoc
124     IOUtils.closeQu

```

## Unit tests 945







|  |     |
|--|-----|
|  <a href="#">org.apache.commons.io</a>            | 495 |
|  <a href="#">org.apache.commons.io.input</a>      | 224 |
|  <a href="#">org.apache.commons.io.output</a>     | 85  |
|  <a href="#">org.apache.commons.io.comparator</a> | 64  |
|  <a href="#">org.apache.commons.io.filefilter</a> | 58  |
|  <a href="#">org.apache.commons.io.monitor</a>    | 11  |

## org.apache.commons.io.FileUtilsTestCase

Source

Tests

**100%** Tests: 121 Failures/Errors: 0/0 Duration: 2.6 sec

| Duration   | Unit test name           |
|--|--------------------------|
|  108 ms | testGetFile              |
|  2 ms   | testGetFile_Parent       |
|  2 ms   | testGetTempDirectoryPath |
|  2 ms   | testGetTempDirectory     |
|  2 ms   | testGetUserDirectoryPath |
|  2 ms   | testGetUserDirectory     |

# Automated Test Suite



What Else Can CI Give  
You?





## Generated Reports

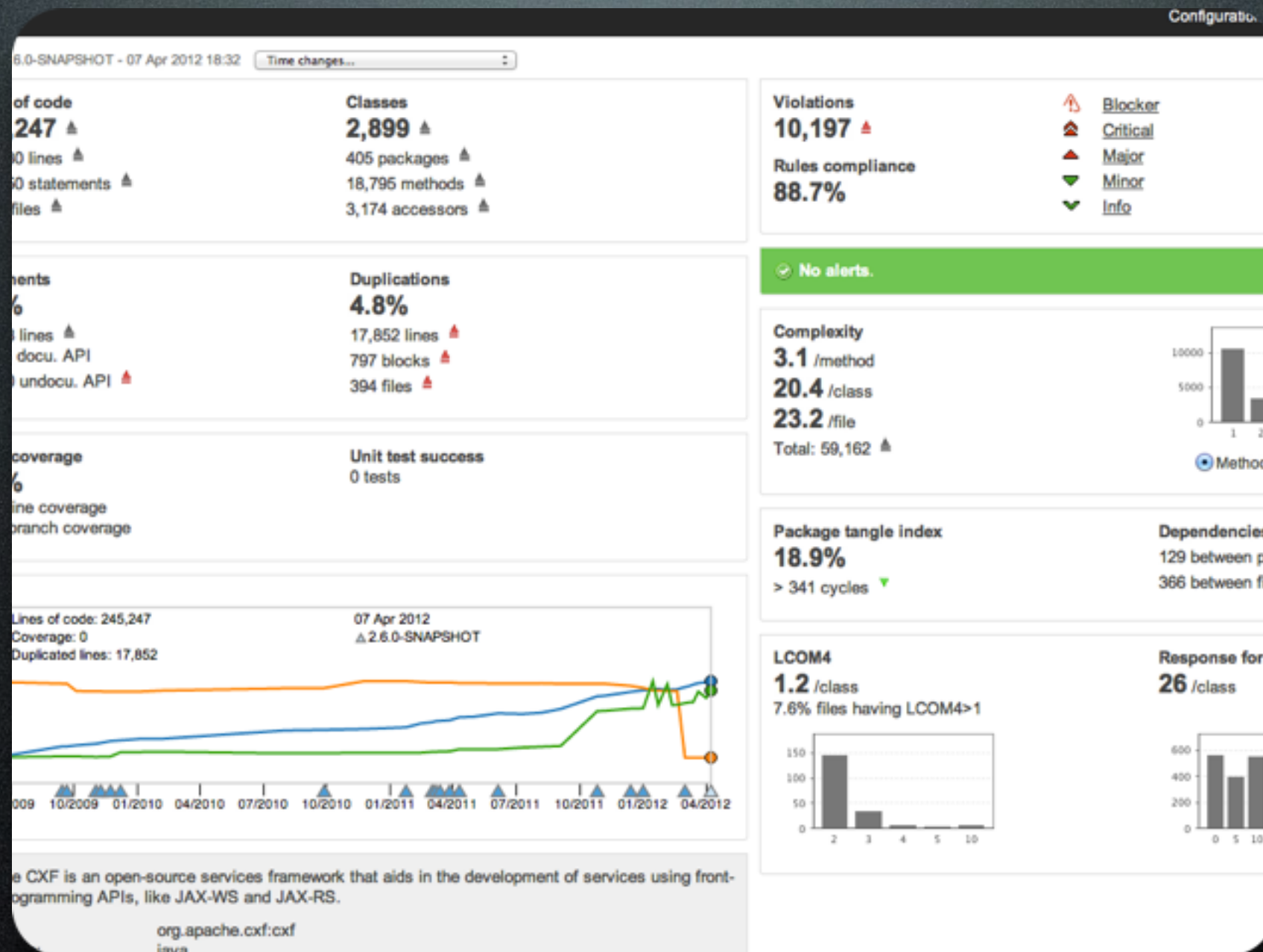
This document provides an overview of the various reports that are automatica

### Overview

| Document                                | Descript   |
|---|------------|
| <a href="#">Cobertura Test Coverage</a> | Cobertura  |
| <a href="#">CPD Report</a>              | Duplicate  |
| <a href="#">JavaDocs</a>                | JavaDoc    |
| <a href="#">Maven Surefire Report</a>   | Report on  |
| <a href="#">PMD Report</a>              | Verificati |
| <a href="#">Test JavaDocs</a>           | Test Java  |

# Automated Documentation





# Code Coverage & Other Metrics



# Automated Deployment (and rollback)



Image: Bravo213 / <http://www.flickr.com/photos/bravo213/>



# Demo





What About Continuous Delivery?



# What is Continuous Delivery?

“... about putting the release schedule in the hands of the business, not in the hands of IT. Implementing continuous delivery means making sure your **software is always production ready throughout its entire lifecycle** – that any build could potentially be released to users at the touch of a button using a fully automated process in a matter of seconds or minutes.”

-- Jez Humble



# Principles

- Repeatable
- Automate
- Painful? Do it more!
- Use Source Control for EVERYTHING
- Done: Sushi Done vs. Chicken Done
- Quality Metrics
- Everyone is responsible for releasing
- Continuous Improvement



# Practices

- Build once
- Use the same process to deploy to your local dev machine as to prod
- Smoke test
- Deployment pipelines



Questions?



# Resources

- Continuous Integration by Paul Duvall - <http://bit.ly/AysbsP>
- Continuous Delivery by Jez Humble & David Farley - <http://bit.ly/zLMFCI>
- Integrate Often - <http://bit.ly/wahTyf>
- Continuous Integration Anti-patterns - <http://ibm.co/zY2912>
- Martin Fowler Continuous Integration - <http://bit.ly/y96P86> and <http://bit.ly/zQKVo8>
- Jenkins CI - <http://jenkins-ci.org/>
- CI and Testing: Mere Child's Play - <http://bit.ly/HI1tVF>
- 8 Principles of Continuous Delivery - <http://bit.ly/HG44tX>



# Thank You!

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