

# Mature your Process with Continuous Integration

CapArea .NET SIG

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<http://bit.ly/2XNYcB>

# Agenda

- Intro
- People
- The process of Continuous Integration
- Halftime
- The technology of Continuous Integration

# #shamelessselfpromotion

- Work Experience

- *System Engineer*
- *Developer*
- *PM*
- *Tester*

## *Contact Info*

*mobiusdevelopment.com*

- history of community

*jwmiller5 @*    

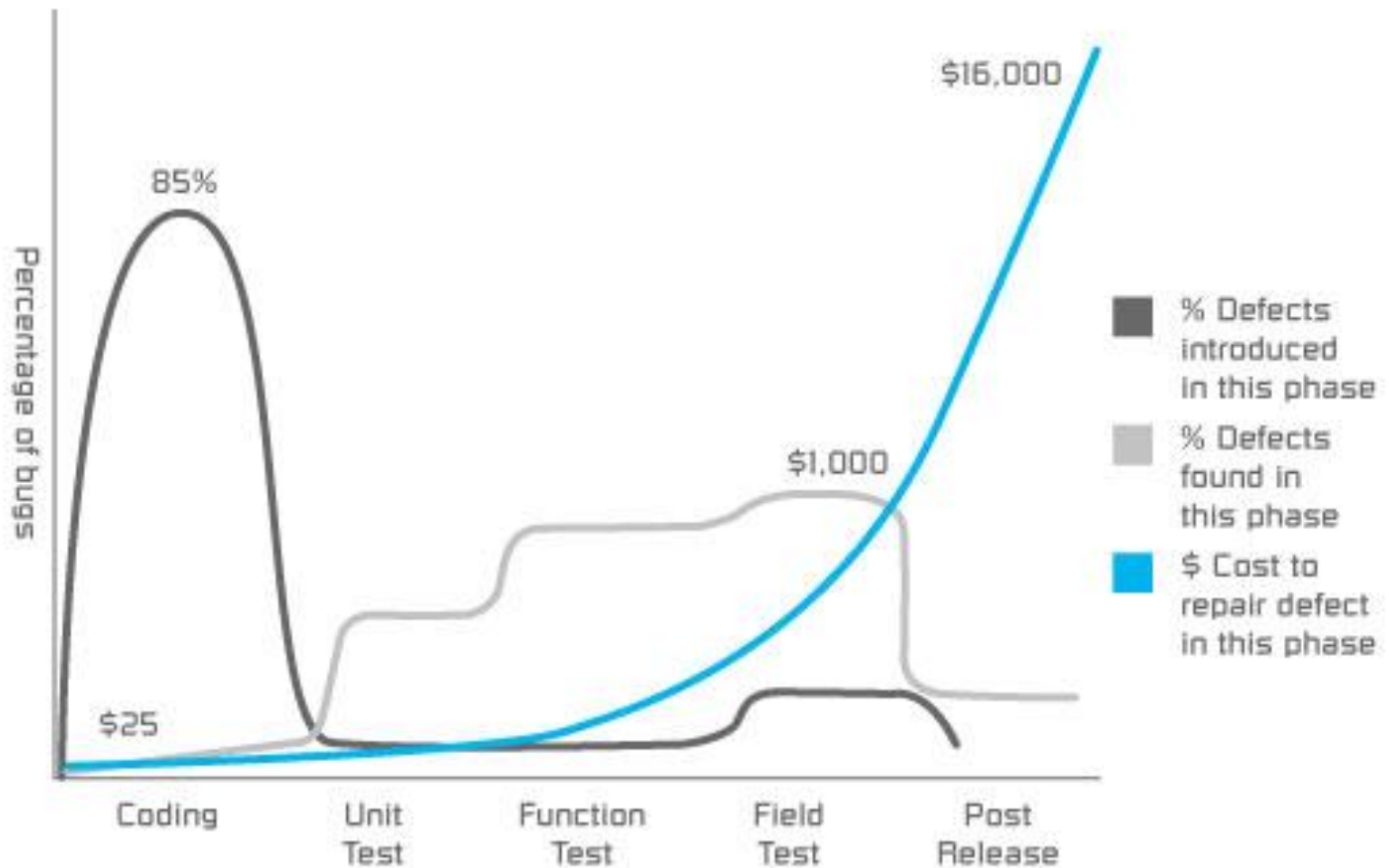
# About You

Processes	People	Tools
Unit Testing	Developer Ramp-up Time	Source Control
Performance Testing	Refactoring Pain	Standard Build Config
Formal Build Process	System Owner Segmentation	Documentation
Design Review		
Code Reviewer		

# Process

# Continuous Integration is a development process

- *Continuous Integration is a software development practice where members of a team integrate their work frequently. Each integration is verified by an automated build to detect integration errors as quickly as possible.*



Source: *Applied Software Measurement*, Capers Jones, 1996

# Tale of the Tape

- MS Applications Division has found it takes 3 hours to identify a defect by code inspection vs 12 hours with testing
- It takes programmers a similar amount of time to write code with few bugs as it takes to write buggy code.
- Code Complete, Chapters 20-21

# Software Quality is a team deliverable

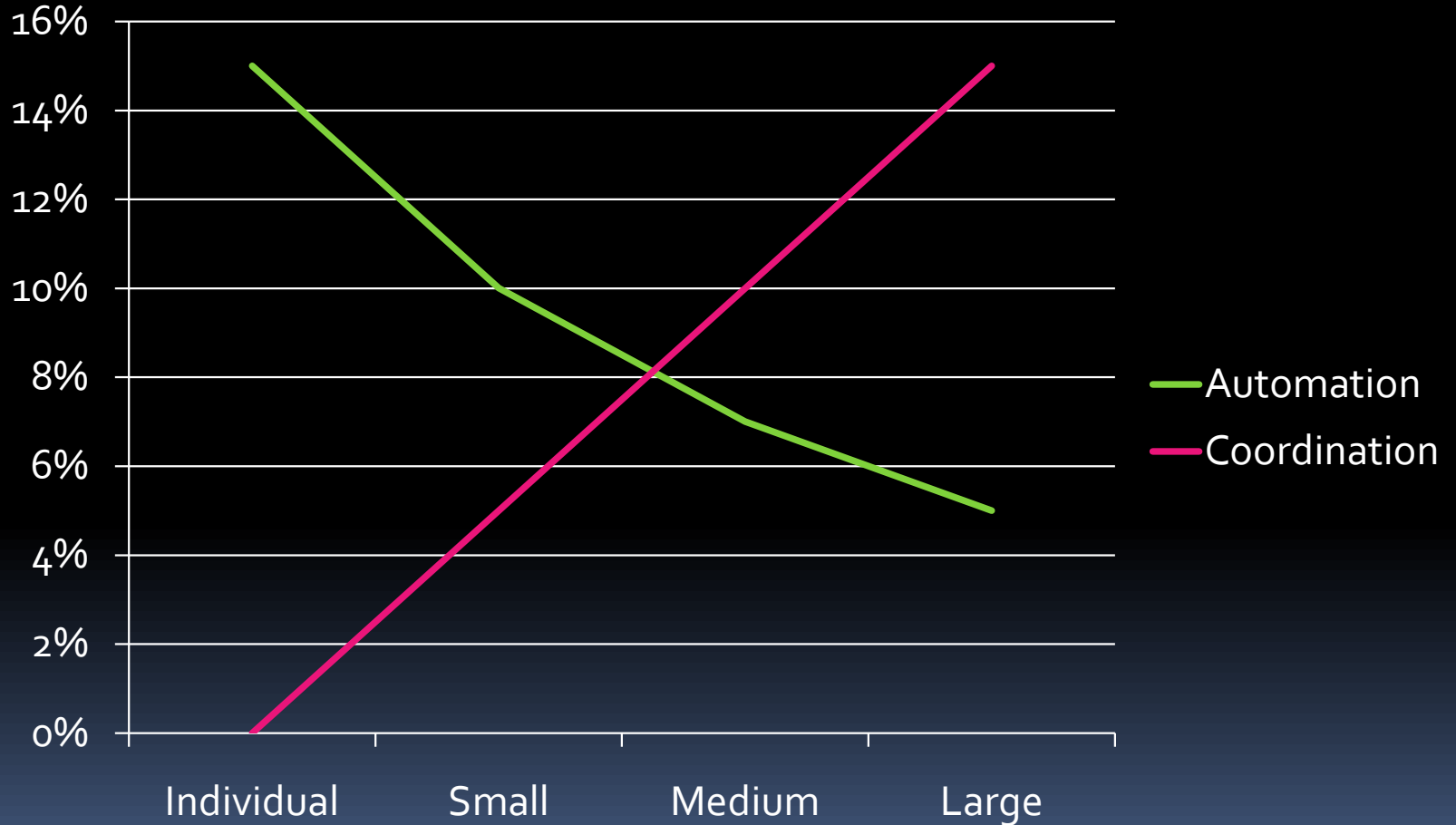
Table 20-3. Extreme Programming's Estimated Defect-Detection Rate

Removal Step	Lowest Rate	Modal Rate	Highest Rate
Informal design reviews (pair programming)	25%	35%	40%
Informal code reviews (pair programming)	20%	25%	35%
Personal desk-checking of code	20%	40%	60%
Unit test	15%	30%	50%
Integration test	25%	35%	40%
Regression test	15%	25%	30%
<b>Expected cumulative defect-removal efficiency</b>	<b>~74%</b>	<b>~90%</b>	<b>~97%</b>

# The Nine Commandments of CI

- Maintain a Single Source Repository
- Automate the Build
- Make the Build Self-Testing
- Everyone commits to the mainline every day
- Every build builds the mainline on an integration machine
- Keep the Build fast
- Test in a clone of production
- Make it easy to get the latest binaries
- Everyone can see what's happening

# Productivity Benefits from CI



Halftime

# Tools

# Shopping List

- Source Control
- Build
- Test
  - Unit Test
  - Code Coverage
  - Acceptance Tests
  - Performance Testing

# ShoppingList

- Analyze
  - FxCop
  - CAT.NET
  - Duplicate Code finder
  - StyleCop
  - SandCastle
  - Complexity Metrics

# ShoppingList

- Publish
  - Package with Installer
  - Changelogs
  - Documentation



# Best Practices and Common Missteps

- It can be difficult/expensive to setup a build server
- Iterative Build Process
  - Install Tools locally and use then inside Visual Studio
  - Batch the analysis and grab some coffee
  - Deploy to CI environment

# Best Practices & Common Missteps

- It can be difficult/expensive to setup a build server
- Iterative Build Process
  - Install Tools locally and use then inside Visual Studio
  - Batch the analysis and grab some coffee
  - Deploy to CI environment
- Include Analysis as deliverable

# Coming Up Next

- December 5th: SharePoint Saturday DC  
*<http://www.sharepointsaturday.org/dc>*
- December 9th: John Miller presents  
Another Lap Around ASP.Net Dynamic  
Data. *<http://www.rocknug.org/>*
- December 10th: Pete Brown presents a  
PDC Wrap-Up *<http://caparea.net/silverlight>*
- December 15th: Antonio Chagoury  
presents A Sneak Peek of Visual Studio  
2010 and .NET Framework 4.0  
*<http://www.caparea.net>*