An Overview of Agile Testing

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With Material from Janet Gregory
Introduction

• Tester on agile teams since 2000
• My teams:
  • Delight customers
  • Deliver production-ready value every 2 weeks
  • Drive development with tests, examples
  • 100% regression test automation
Your Agile Experience

How about you?

- Managers, testers, developers, ScrumMasters...?
- How long has your team used agile practices/principles?
Takeaways

- Transitioning to agile testing
- How testing works on agile teams
- Agile testing tools and techniques
- Key success factors
Traditional vs. Agile SDLC

**Phased or gated** – eg. Waterfall

**Agile**: iterative and incremental
- Each story is expanded, coded and tested
- Possible release after each iteration
Testing as a Phase

- Code, then test
- Separate, siloed teams
- Heavyweight process
  - Requirements, design documents
  - Test plans
  - “Traceability”
  - Change review boards
- Testing “bottleneck” at end
Automation - After Coding

- Vendor tools
- Record/Playback
- Done by testers or automation team
- If developers automate unit tests – it’s after coding
- Expensive
Exploratory Testing – “agile”

- Exploring reveals unintended consequences and uncovers implicit expectations

- Critical thinking, no requirements doc needed

- Diverse ideas

- Rich resources
  - Tools, data, people
  [source: Jon Hagar]
How Agile Changes Things

- Whole Team Approach
- Coding and testing are one process
- Feedback, collaboration key
- TDD/ATDD practices
- Test-infected developers, better tools, better-designed tests
Team Organization - Traditional vs. Agile

Agile: roles overlap
Test Approach - The Agile Way

### Project Initiation
- Get an understanding of the project

### Release Planning
- Participate in estimating stories
- Create Test Plan

### Each Iteration
- 1
- Write and execute story tests
- Write and execute new functional test cases
- Pair test with other testers, developers
- Automate new functional test cases
- Run automated regression test cases

### System Test / End Game
- Perform Load Test
- Complete Regression Test
- Perform UAT
- Perform Mock Deploy
- Participate in Release Readiness

### Release to Prod / Support
- Participate in Release to Prod
- Participate in Retrospectives
The Whole Team Approach

- Team commitment to quality
- Team responsible for testing
- Testers get support, training
- Developers do testing activities
- Testers and developers pair
- Get the right people
Testing is Not a Phase

- Development = testing + coding
  - Write test, write code, test
  - At unit and acceptance test levels
- Automated tests
  - Designed for efficiency, maintainability
  - Free time for exploratory testing
- Team plans testing activities
  - All four “quadrants”
Agile Testing Quadrants

- **Automated & Manual**
  - **Business Facing**
    - Functional Tests
      - Examples
      - Story Tests
      - Prototypes
      - Simulations
    - Exploratory Testing
      - Scenarios
      - Usability Testing
      - UAT (User Acceptance Testing)
      - Alpha / Beta
  - **Manual**
    - Q2
    - Q3
  - **Supporting the Team**
    - Q1
    - Q4
  - **Technology Facing**
    - Unit Tests
      - Component Tests
    - Performance & Load Testing
      - Security Testing
      - “ility” Testing
  - **Critique Product**
    - Tools

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Feedback Guides Development

- Team uses feedback to improve
- Testers are expert feedback providers
- Feedback lets team make course corrections
Feedback Examples

- Continuous Integration test results
  - Faster is better
- Big Visible Charts
- Retrospectives
- Short iterations facilitate improvement
- Discoveries during exploratory testing
- Collaboration with users, customers
Core Practices for Success

- Continuous integration
  - Frequent and fast feedback
- Coding and testing one process
- Test environments
- Manage technical debt
- Work incrementally
- Synergy
Where Is It Taking Us?

- Lines between roles blurred
- More focus on tests to drive coding
- Examples as requirements
- Find ways to control technical debt
- Tests pushed to lower levels
  - Less end-to-end automation
  - Automate based on ROI
  - Maintainable tests
  - Failures easier to debug
Test Automation Pyramid

- Manual Tests
- GUI Tests
- Acceptance Tests (API Layer)
- Unit Tests / Component Tests

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Current Trends in Testing/Development

- Pomodoro technique for pairing, planning
  - www.pomodorotechnique.com
- More exploratory testing
  - As automated regression tests free time
  - context-driven-testing.com
- Lean approaches
  - Kanban, scrumban
  - Poppendieck’s books
More Current Trends

- Continuous Integration is a given
- More frequent releases
- Expanded test tool options
- Low-tech prototyping, tracking
- More early collaboration
- Behavior-Driven Development (BDD)
BDD/Narrative/Scenario Example

Given that the FitNesse wiki is a Wiki
Given that the FitNesse User is a Web User
Given that the FitNesse wiki was able to start for the first time
When the FitNesse User attempts to go to the Home Page
Then the content of the Home Page for the FitNesse User should be Welcome to the Wonderful World of FitNesse!

From: Antony Marcano, Andy Palmer, testingreflections.com, pairwith.us
Scaling Up and out

- Larger organizations adopt agile
  - My company has 28 Scrum teams
- More remote team members
  - Need the best people, so…
  - Hire them where they live
  - Technology enables
  - NOT remote test teams!
Test Tools

- Mix & Match open source frameworks/drivers
- Vendor tools getting lighter weight
  - GUIdancer – object-oriented
- FitNesse/Slim/Fit widely used
  - Framework for many other tools
- BDD tools growing in popularity
  - Cucumber, easyb, nbehave
- GUI test drivers standardizing
  - Watir, Selenium, Robot Framework
## Testing Tool Spectrum

**Utilities**
- All Pairs Combinations
- Polyglot languages
- Logic programming
- Threads, Parallel concurrency libraries
- Data-driven libraries
- Networking libraries
- XML Processing
- Read/write files, Excel / Word / CSV, Reporting, Logging

**Tools**
- iTest2, SoapUI, Twist, GUIdancer, IDEs, JMeter, Text editors, Recorders, Build Tools, CI

**Runners**
- Native Groovy, JUnit, TestNG, Spock, EasyB, JBehave, Cucumber, Robot Framework, Slim

**Web Drivers**
- WebTest
- WebDriver
- JWebUnit
- Tellurium
- Selenium
- HtmlUnit
- Watij
- HttpBuilder
- Cyberneko

**Database Drivers**
- DbUnit
- DataSets
- SqlUnit
- groovy.sql
- JPA
- JDO
- BigTable
- JDBC

**SOAP / REST Drivers**
- GroovyWS
- XML-RPC
- CXF
- Axis2
- JAX-WS
- JAX-RS

**Other Drivers**
- FEST
- Email
- FTP
- AntUnit
- Telnet
- SSH
- Exec

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Trends in Test Automation

- Record/Playback as “trainer” only
- Test architecture/design critical
- Planning and tracking tools – online and low-tech
- Open source, agile tools explosion
  - Plenty of good browser test drivers
  - Other problems now being solved
- Scenario, Narrative style
Testing Techniques

- Team writes acceptance tests together
- Programmers and testers pair to automate tests
- ROI guides automation
- Testers do exploratory testing
- Customers participate
  - Pair with customers for ET
  - Frequent demos
What Does It Mean for Us?

- Values more important than process, practices
- Testers need to adopt new mindset
  - Ramp up skills
- More creative thinking, problem-solving
- Do what works for your team
  - Don’t blindly follow trends
Key Success Factors

- Look at the Big Picture
- Use the Whole Team Approach
- Adopt an Agile Testing Mindset
- Automate Regression Testing
- Provide and Obtain Feedback
- Collaborate with Customers
- Build a Foundation of Core Agile Practices
Do Your Best Work

- Whole Team approach
  - Testers, customers, developers collaborate
- Business examples, turned into tests
- Agile Testing Quadrants
- Test Automation Pyramid
- Exploratory testing
The Future is What You Make It

- Get out of your chair – see how you can help
- Learn a new test framework or scripting language today - build your skills
  - Lots of free resources, just takes time
  - Leave your comfort zone
- Bring testing problems to the whole team
  - Benefit from multiple skill sets
- How can your expertise help the team?
Questions?
Some Agile Testing Resources

- lisacrispin.com
- janetgregory.ca
- exampler.com
- agile-testing@yahoogroups.com
- testobsessed.com
- Antonymarcano.com
Bridging the Communication Gap

Specification By Example and Acceptance Testing

Gojko Adzic
Now Available

**Agile Testing: A Practical Guide for Testers and Agile Teams**

By Lisa Crispin and Janet Gregory

www.agiletester.ca