

DevOps and Automated Testing

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Nearshore
Distributed
Agile Teams



About Velocity Partners

- Better business through better software
- HQ in Seattle
- Nearshore Distributed Agile Teams
- Offices in Argentina, Uruguay and Colombia
- Alignment with North America
- Highly collaborative agile development
- Our people make the difference!



Housekeeping

- If you're having technical issues, please send a message to the organizer, via GotoWebinar
- Questions encouraged! Please send them via the GotoWebinar question box.
- There will also be a brief (time allowed) Q&A at the end of the webinar
- Presentation deck & recording will be made available

Introduction

Bob Galen



- Independent Agile Coach (CEC) at [Velocity Partners](#)
- Director, Agile Practices at  zenergy TECHNOLOGIES
- Somewhere 'north' of 30 years overall experience ☺
- Wide variety of technical stacks and business domains
- Developer first, then Project Management / Leadership, then Testing
- Senior/Executive software development leadership for 20+ years
- Practicing formal agility since 2000
- XP, Lean, Scrum, and Kanban experience
- From Cary, North Carolina

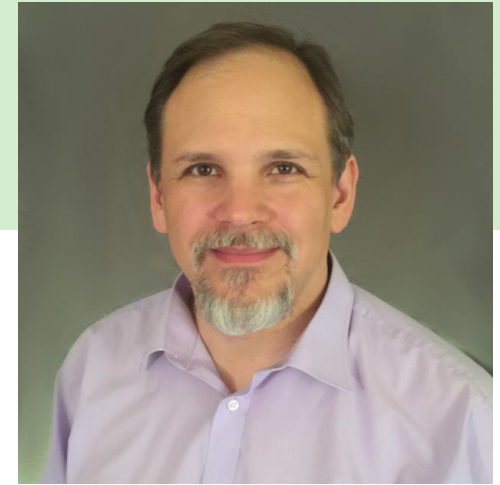


Bias Disclaimer:
Agile is THE BEST Methodology
for Software Development...
However, NOT a Silver Bullet!



Introduction

Bill DeVoe



- Principal Agile Evangelist for Velocity Partners
- Over 25 years experience in IT
- Started career as Windows developer but broad experience across a variety of industries (broadcasting, access control/security, and health care, to name a few)

- Started working in agile (eXtreme Programming) in 1999
- Moved to Scrum in 2011
- Knowledge and practice of eXtreme Programming, Scrum, Kanban, and scaling agile (SAFe and LeSS)
- Experienced with enterprise-wide agile transformations

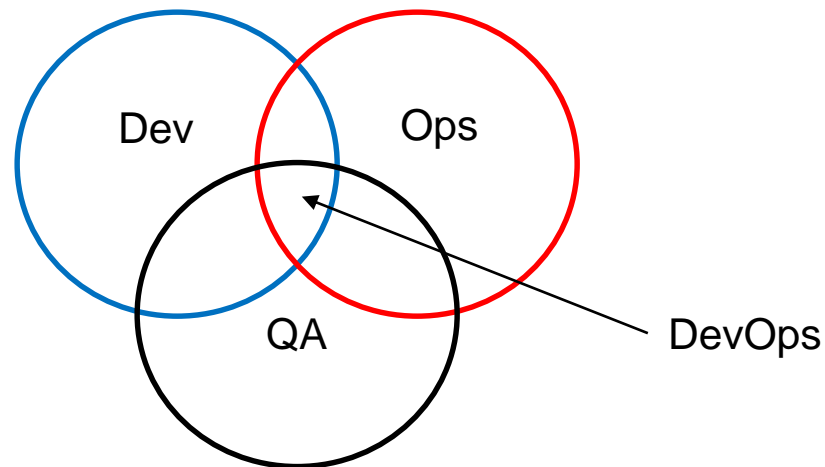
- Responsible for agile practices at Velocity Partners
- Works with VP's clients on training and best practices
- Conference speaker (Big Apple Scrum Day, Agile 2017)

- Based in Denver, Colorado



DevOps Overview

- DevOps is a practice that emphasizes and encourages communication and – especially – collaboration between IT, QA, and Operations
- Focused on developing, testing, delivering, and maintaining software products faster and with higher quality



DevOps Impacts

- DevOps is a growing trend
 - Over 74% of companies surveyed said they're doing DevOps
 - Over 81% of larger enterprises claim they are¹
- Agile is often seen as an “IT only” practice
 - Change “how” we write software, not how we deliver value
- DevOps recommends changes across silos
 - Cultural changes
 - Organizational changes (matrix or full re-org)
 - Natural extension of Lean-Agile thinking and practices

1. *Datamation* “10 Ways DevOps is Changing the Enterprise”

DevOps Structure

- Operational Changes
 - Teams deliver to production frequently
 - DevOps Toolchain automates many tasks
 - Open, pro-active communications
- Organizational Changes
 - Cross-functional teams
 - Matrix team structure common
- Cultural Changes
 - Team ownership over individual ownership
 - Flexible responsibilities
 - Focus on making and eating own “dog food”

DevOps Operational Changes

- Focus on small but frequent delivery to production
 - Requires business clarity
- DevOps Toolchain automates many tasks
 - Automation in builds
 - Environment stand-up/tear-down automation
 - Automated testing
- Open, pro-active communications
 - Requires full-team commitment
 - Ability and willingness to engage with others
- Adopt an agile framework
 - Scrum and Kanban are common methodologies

DevOps Organizational Changes

- **Cross-functional teams**
 - Teams need members from all groups
 - Avoid component teams; feature teams more prominent
 - Need broad skillset to develop, deliver, and maintain products
- **Matrix team structure common**
 - Most companies maintain silo organizations (IT/Dev/Eng, QA, and Ops)
 - Members from each silo are assigned to cross-functional teams
- **Re-organizations to DevOps possible**
 - Some companies reorganize their Dev, QA, and Ops teams into one larger organization

DevOps Cultural Changes

- Team ownership over individual ownership
 - Team is committed to delivering
 - Roles fluid – no “developers” vs “testers” vs “ops” – just “team”
 - Co-ownership of infrastructure
- Flexible responsibilities
 - Developers add to test framework and operations infrastructure
 - Everyone starts when work begins and stops when delivery complete
- Focus on making and eating own “dog food”
 - Teams have to support the product, so less “throw over the wall” behaviors and attitudes

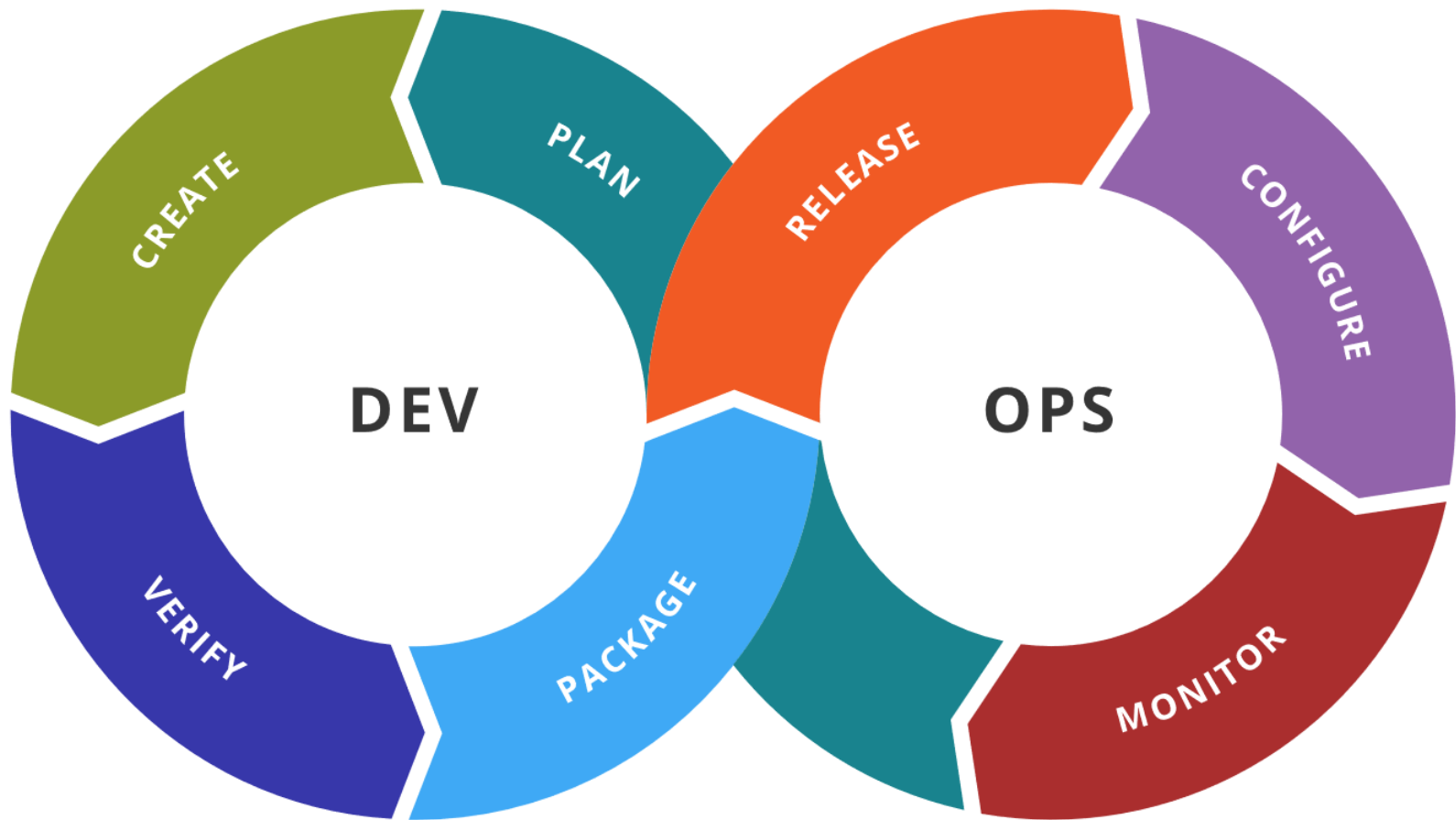
DevOps Toolchain

- DevOps Toolchain is integral to facilitating goal of rapid, high-quality delivery to production
 - Continuous Integration and Continuous Deployment (CI/CD) are elements of the Toolchain – they aren't DevOps
 - DevOps focuses on more than just the tools
 - CI/CD can help enable rapid development and deployment
- Common tools
 - Jenkins/Hudson (CI)
 - Maven (automated build)
 - Ant
 - git/GitHub (source code repository)
 - Docker (containerization)
 - Puppet (infrastructure)
 - Vagrant (virtualization)
 - Cucumber (testing)

DevOps Toolchain

- The Toolchain consists of 7 primary stages
 - Plan – electronic ticketing or product backlogs
 - Create – source code control; automated builds
 - Verify – automated testing, including unit, UI, and system
 - Package – continuous integration tools
 - Release – change management and release automation
 - Configure – infrastructure management; virtualization tools
 - Monitor – application monitoring tools
- Automation has simplified and streamlined many of these stages

DevOps Toolchain Stages



By Kharnagy - Own work, CC BY-SA 4.0, <https://commons.wikimedia.org/w/index.php?curid=51215412>

Agile Test Automation Pyramid



Agile Test Automation Pyramid

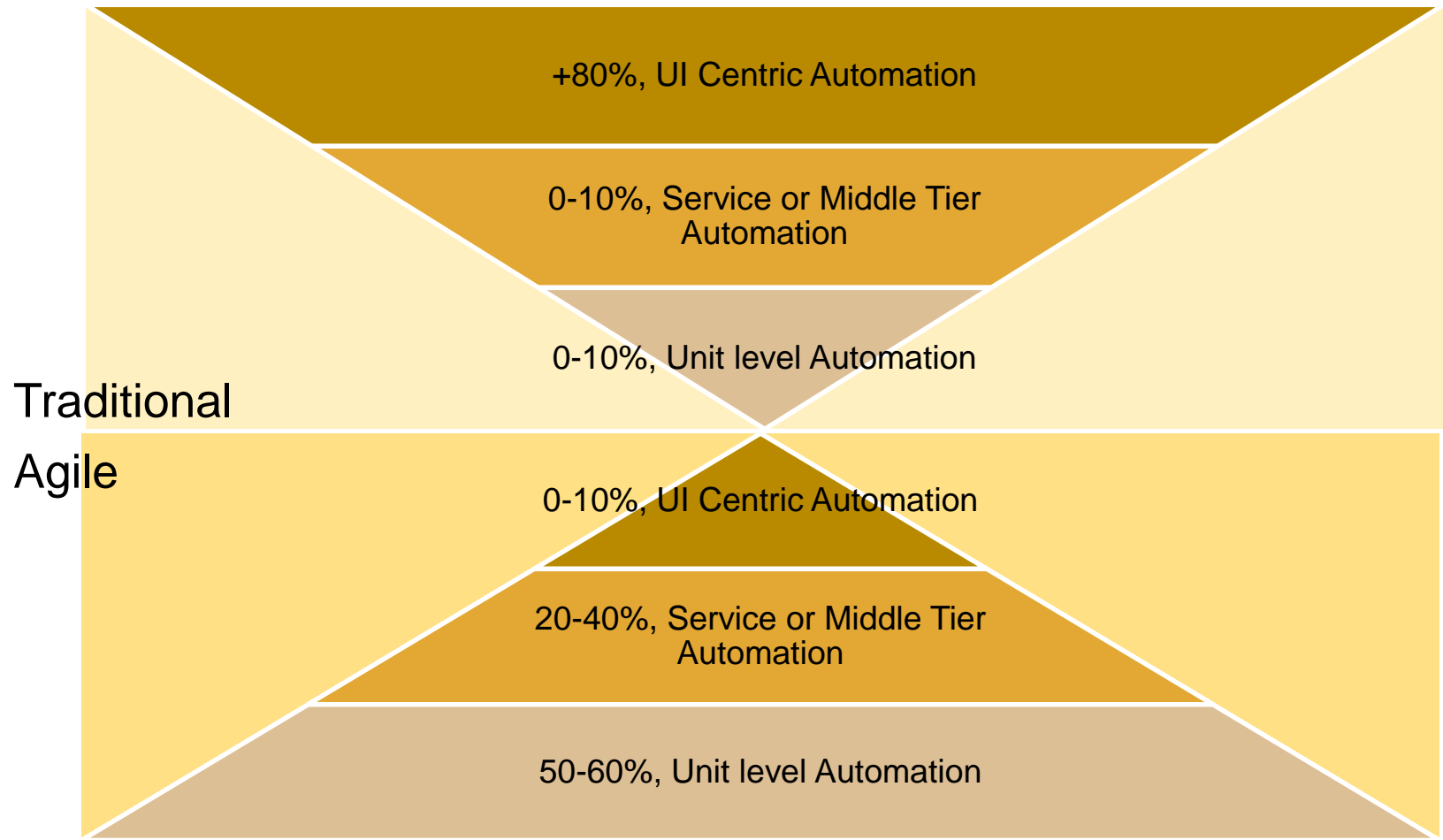
- Coined by Mike Cohn, ~ 2005
- Establishes the validity of turning Traditional Automation – upside down
- Invests:
 - Most effort (%) in Unit Tests
 - Moderate effort (%) in Middle-tier tests (business logic, API, component, feature)
 - Least effort (%) in UI-centric, top down tests
- Granularity of the tests is part of the strategy

Agile Test Automation Pyramid

Often:

- Tied to Definition-of-Done from a maintenance perspective
 - You break it, you fix it
- Percentages vary; intent does not
- Whole-team ownership of automation
 - Although it skews at either end of the pyramid
- Run as much as possible
 - Check-in, Overnight, Cyclically
 - Prime Directive = Real-time Feedback

Agile Test Automation Pyramid

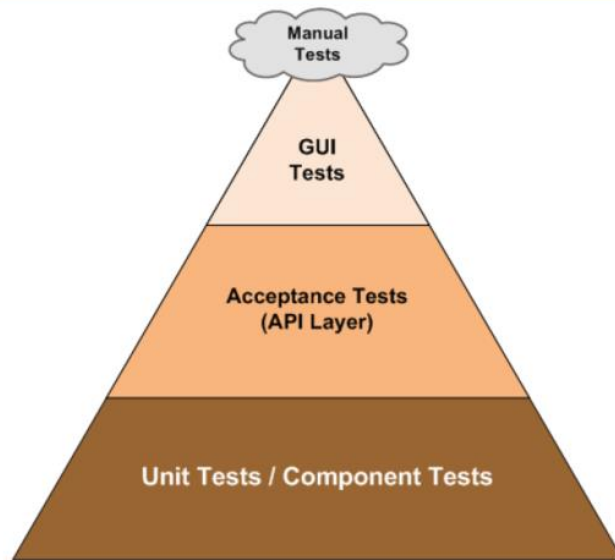


Agile Test Automation Pyramid

Mike Cohn; Lisa Crispin & Janet Gregory

<http://behaviordrivendevelopment.wikispaces.com/Testing>

Test Automation Pyramid



Copyright 2009: Lisa Crispin



QA Home - QA team - Technology - iContact Internal Wiki

Automation Numbers

UI(16)

System(651)

Integration(817)

Unit(10686)

Test Case Resources

- [Manual Test Runner](#)
- [Feature File Writing](#)
- [Using Rubymine to Checkout Features](#)
- [Converting Testcases to Feature Files](#)
- [Autojoining QA chat](#)

Regression Testing & Mock Deploy/Release Coordination

- [Regression Testing Information](#)
- [Test Fest Planning](#)
- [Lead QA - Release checklist](#)
- [Automation Regression Responsibilities](#)

Bug Writing

- [Bug Workflow](#)
- [Bug FAQ](#)
- [Bug writing best practices](#)
- [Root Cause Analysis Library](#)

Testing Environment Info

- [Environments](#)
 - [Lab](#)
 - [Staging](#)
 - [QED](#)
- [Environment Build/Destroy Queue](#) (see which environments are enqueued to be built/destroyed)
- [Mail Sending schematics](#)

Definition of Done

iContact example

- As part of story design, consider 3-levels of automation required for solid implementation:
 - Unit
 - Cucumber
 - Selenium
- If the team warrants the automation has value (ROI) then automate it
- Implement those automated test cases WITH the story
- Demonstrate them in the Sprint Demo

Definition of Done

iContact example

- Previous sprint automation needs to continue to work; if you break it...then Fix It!
- Previous CI/CD – automation wiring needs to continue to work; if you break it...then Fix It!
- All appropriate (RBT) Acceptance Tests should be regressed so that we haven't "lost value"
- And in Readiness Criteria
 - Automation research spikes and architectural look-ahead

Agile Test Automation Implementation Strategy



Automation is one of the foundational investments of effective Agile Adoptions. It's not a choice, it's an imperative! It's a cost of doing business.

Automation Development

- Move it to your teams ASAP
- Make it a part of Definition-of-Done
 - It should become a natural outcome and not a choice or question
- Complete it within each sprint
 - SAFe as a goal model for completing work in the same sprint!
 - Salesforce as well
- It needs to be a negotiated part of your Product Backlog
- Have % targets;
- For every story:
 - The TEAM decides the requisite automated tests at each level of the pyramid?

Automation Development

Attacking the Pyramid

- Usually I attack the Unit-level first
 - Development team engagement; sheer #'s
 - Baseline quality improvement
 - Integrated with CI/CD; fast feedback

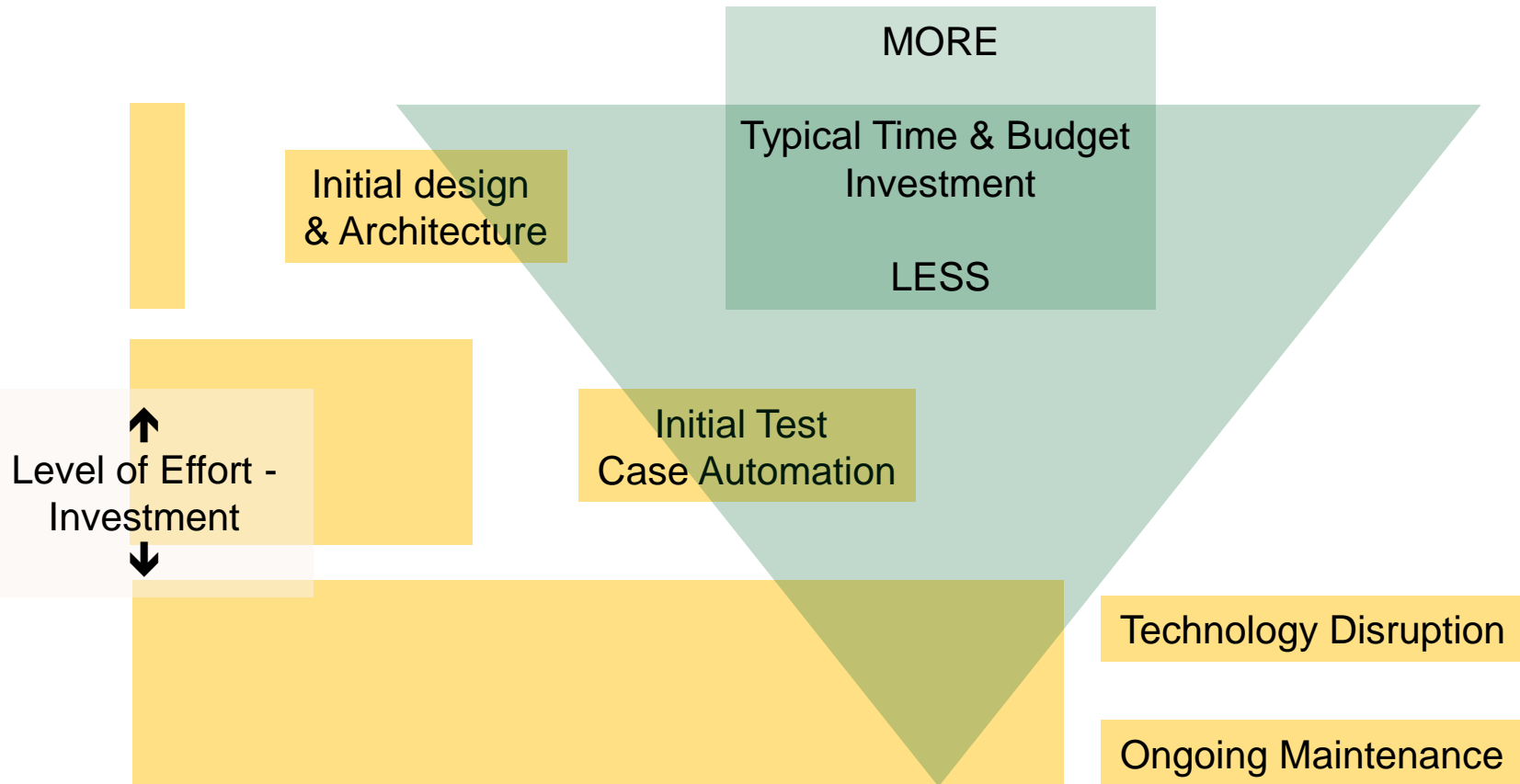
- Then select either middle or UI tier; context based
 - Tools selection
 - Training
 - Framework development

Automation Development

Attacking the Pyramid

- Complete one layer nearly completely before moving to the next layer
- Unit Test Strategy – Don't dig the “hole” any deeper
 - Legacy vs. New
 - Encapsulate vs. Proper unit tests
 - Refactoring implications

Typical Automation Level of effort



Thank you!

- Feedback / requests for future webinar topics;
- Request a video copy of the webinar;
- Sales inquiries; Coaching inquiries; please reach out to:

Brian Estep

Senior Partner

(425) 761-1534

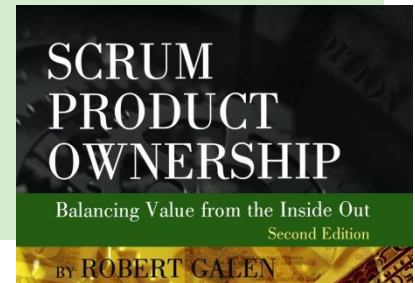
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- We hope to see you at our next webinar...

Contact Info

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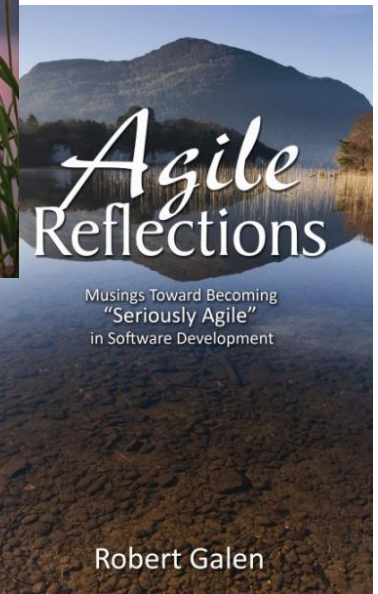
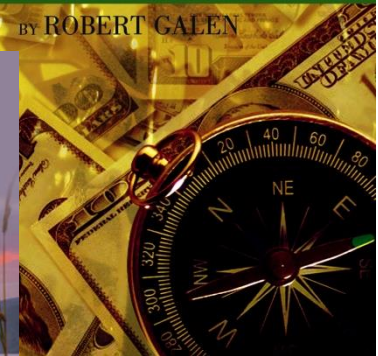
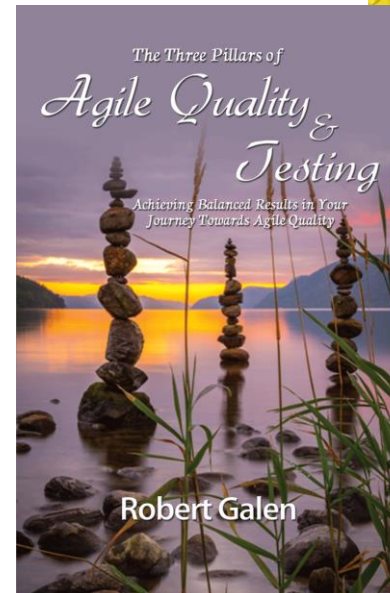
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Podcast on all things 'agile' - <http://www.meta-cast.com/>

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Check out the Velocity Partners blog:

<http://www.velocitypartners.net/blog/>