



W5

Continuous Testing

Wednesday, October 23rd, 2019 11:30 AM

Stabilizing Continuous Testing in DevOps

Presented by:

Eran Kinsbruner

Perfecto

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Eran Kinsbruner

Eran Kinsbruner is the chief evangelist and author at Perfecto, a Perforce company. He authored two books, *The Digital Quality Handbook* and *Continuous Testing for DevOps Professionals*. Eran is also a monthly columnist at InfoWorld.com and The Enterprisers Project. Eran is a software engineering professional with nearly twenty years of experience at companies such as Matrix, Sun Microsystems, General Electric, Texas Instruments, and NeuStar. He holds various industry certifications from ISTQB, CMMI, and others. Eran is a recognized mobile testing influencer and thought leader, as well as an experienced speaker in the major software engineering conferences. He is also a public speaker, researcher, blogger, and a patent-holding inventor for a test exclusion automated mechanism for mobile J2ME testing. He can be found all over social media, including on Facebook, Twitter (@ek121268), LinkedIn, and his professional blog, continuoustesting.blog.



Stabilizing Continuous Testing in DevOps

STAR CANADA

A TECHWELL EVENT

Today's Speaker:
Eran Kinsbruner



- Chief Evangelist and author at Perfecto
- Blogger and speaker
- 19+ years in development & testing
- Author of "The Digital Quality Handbook" and "Continuous Testing for DevOps Professionals"
- Twitter: [@ek121268](https://twitter.com/ek121268)
- Blog: continuoustesting.blog
- Website: perfecto.io



Today's Agenda

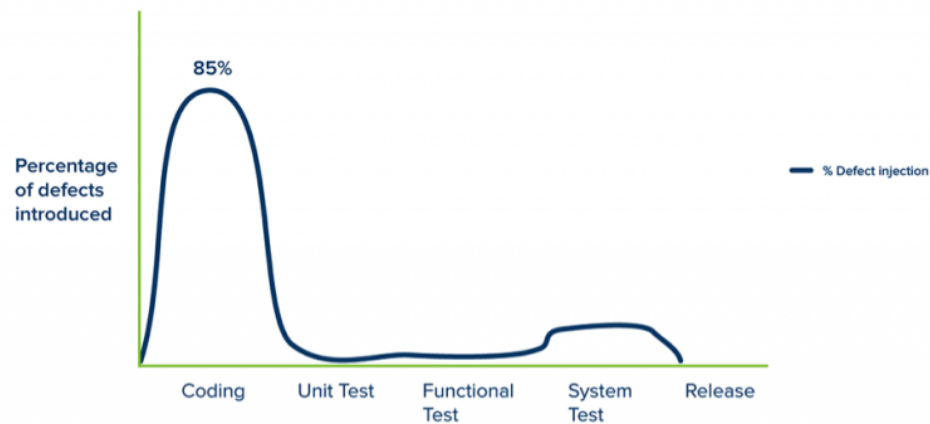
- 1 Agile Testing Manifesto
- 2 How to Decide Which Tests to Automate
- 3 Test Case Certifications in Continuous Testing
- 4 Test Maintenance and Test Aging
- 5 Live Demo

The Agile Testing Manifesto

THE DEVOPS MANIFESTO

- ✓ **Continuous testing** over testing at the end.
- ✓ Embracing **all testing activities** over only automated functional testing.
- ✓ Testing **what gives value** over testing everything.
- ✓ **Testing across the team** over testing in siloed testing departments.
- ✓ **Product coverage** over code coverage.

Shift Left: Manual vs. Automated Testing Impact



Jones, Capers. *Applied Software Measurement: Global Analysis of Productivity and Quality*.



Are You Measuring Your DRE?

$$\text{DRE (Defect Removal Efficiency)} = \frac{\text{Defects removed during the development phase}}{\text{Defects detected later in the cycle (UAT, Production)}}$$

Coverage, lack of and late automation testing, designed for testability, unit testing, outdated environments/platforms.

Test Automation – What to Automate?

Twitter Profile Scenarios							
ID	Description	G	R	V	C	H	Score
1	Add a tweet	✓	25	25	25	0	75
2	View tweets	✓	25	25	20	3	73
3	Pin a tweet	✓	9	16	15	1	41
4	Follow a user	✓	20	25	25	0	70
5	Set handle/username	✓	20	25	25	3	73
6	Set location	✗	1	10	25	25	61
7	Update handle	✓	3	9	25	4	41
8	Block a user	✓	20	25	16	0	61
9	View analytics of a tweet	✓	3	8	9	0	20
10	Balloons appear on birthday	✗	1	5	15	0	21

SCORES: 67-100 = Automate | 34-66 = Possibly Automate | 0-33 = Don't Automate

1. What's the test engineer's gut feeling 😊
2. **Risk** calculated as probability to occur and impact to customers.
3. **Value** — Does the test provide new information and, if failed, how much time to fix?
4. **Cost** efficiency to develop — How long does it take to develop and how easy is it to script?
5. **History** of test — Volume of historical failures in related areas and frequency of breaks.

Source: Angie Jones

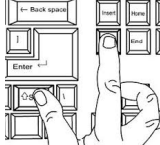
Certifying Test Automation

Test Automation Certification

- Think continuous value.
- Think maintenance and complexity to create, execute, monitor, and maintain (ROI).
- Test reliability over time.

```
If { (Test Scenario) == Candidate to add Value add
    { and x- It detect defects}
    { and - It passes across multiple platforms with consistent result}
    { and - Its execution time is < 5 minutes }
```

```
Then
{ Include in Test Suite & CI }
```

```
Else {

}
```

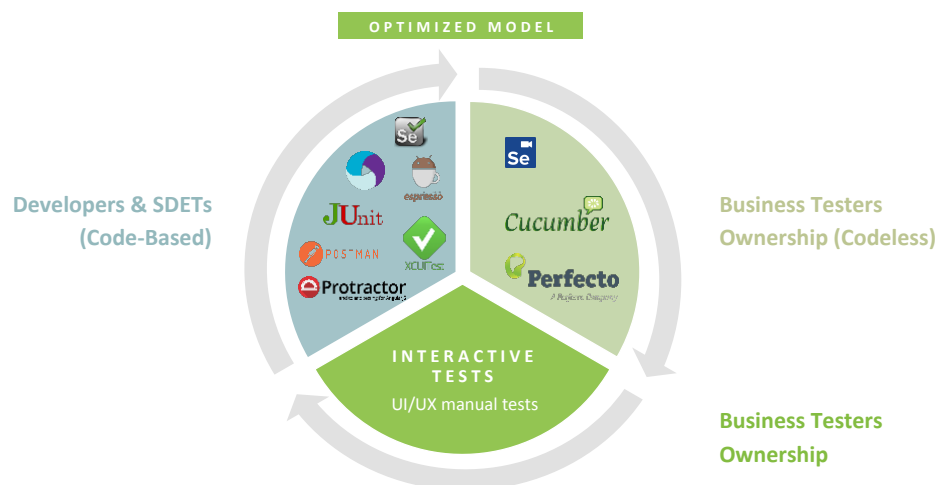
Getting Started With Continuous Testing (Decision Making Process)

- **Test Objectives**
 - What should it cover? Not overly complicated things.
 - Should it be part of each build-acceptance/CI job? (Keep the pipeline GREEN)
 - Reliability when running across multiple platforms/OS versions?
 - Time to develop the test and maintain it?
 - Coverage area should be top of mind.
- **Test development early warnings** (mark tests as “flaky”).



Personas and Tools Balance

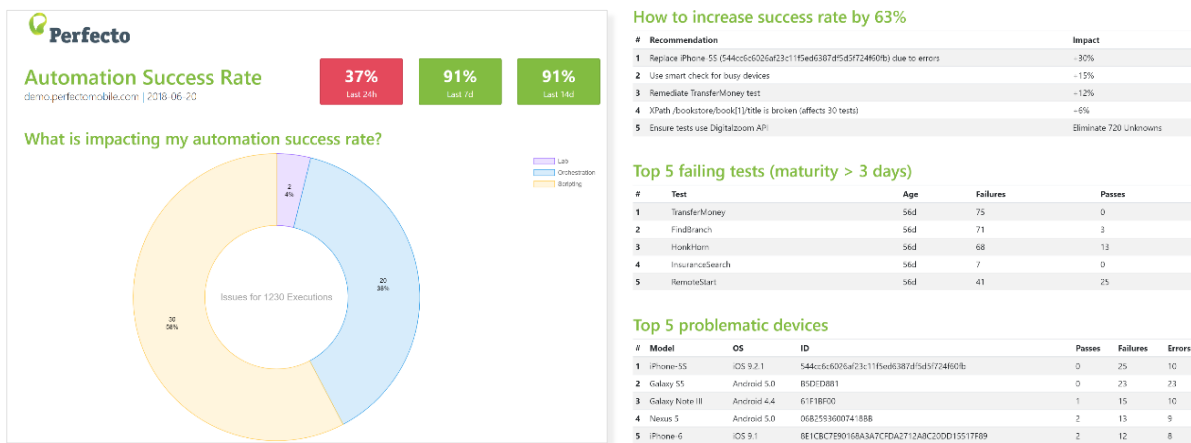
Balancing Test Creation for the Three Different Personas With the Right Tools

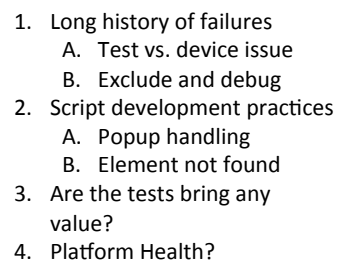




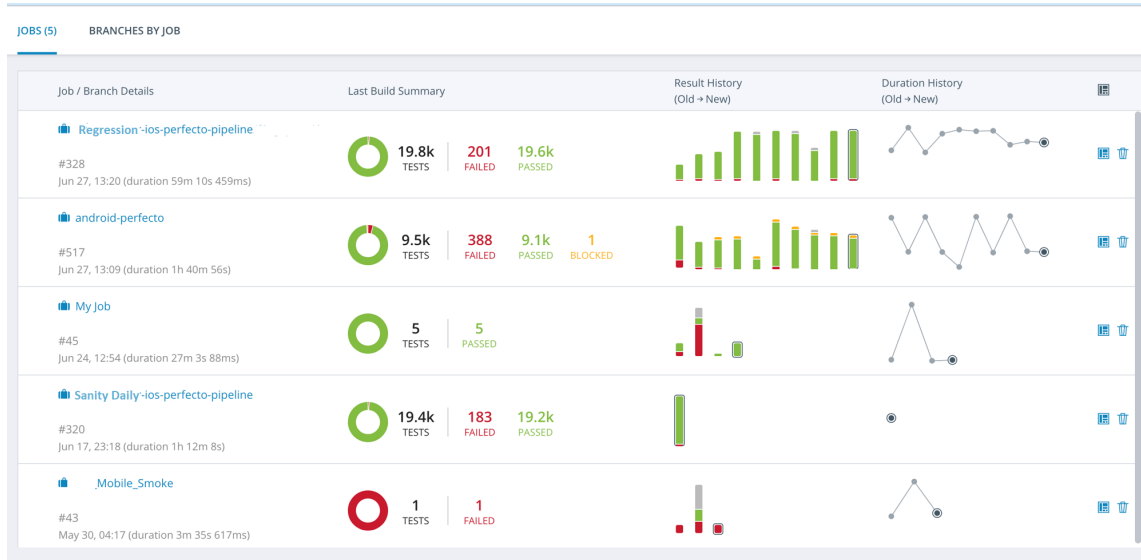
How to Measure Test Value Through Reporting and Analytics

Error Classification and Test Productivity

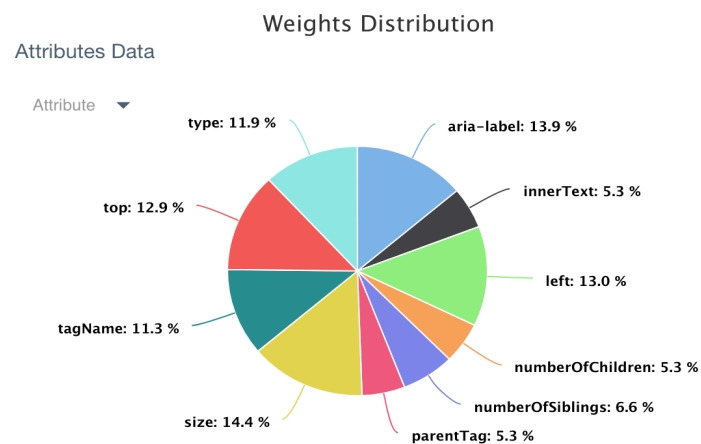




How Do Tests Perform Within CI?

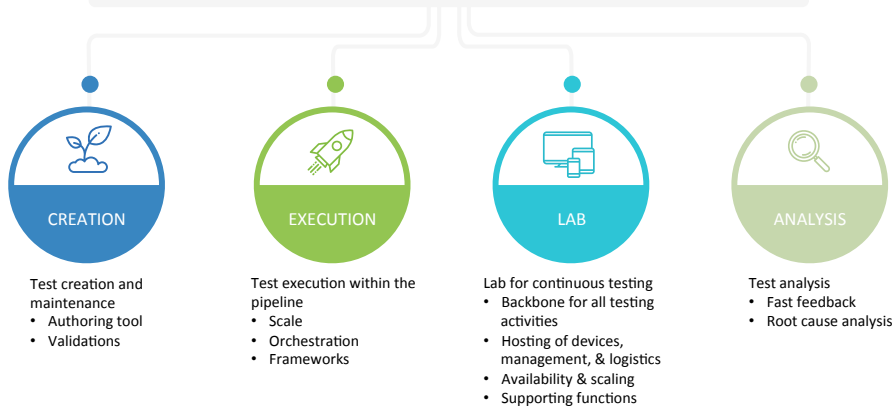


Object Identification Weights Based on History



The 4 Key Pillars of Continuous Testing in DevOps

Unified solution serves DevOps with greater efficiency.



LIVE DEMO

LIVE DEMO

- Execution of BDD test code in parallel.
- Execution of codeless Selenium in parallel.
- ML/AI in action (object locators & test analytics).



Measuring Continuous Testing Success in DevOps

Some Recommended CT Measurements (KPIs)



- **How fast are testing activities moving**, and what is slowing down these activities?
 - Test flakiness.
 - Test duration.
 - Percentage of automated vs. manual tests.
- **Application quality** measurements.
 - Number of escaped defects and in which areas.
 - MTTD — mean time to detection of defect.
 - Build quality.
- **Pipeline efficiency** measurements.
 - Number of user stories implemented per iteration.
 - Test automation as part of DoD across iterations.
 - Broken builds with categories.
 - CI length trending.
 - Lab availability and utilization.
- **Quality cost** measurements.
 - Operational costs, lab availability issues.
 - Cost of hardware/software.
 - Costs of defects by severity and stage

Perfecto's Smart Continuous Testing Solution

Smart Creation
Automation creation that matches your team's skillset (Appium, Espresso, XCUITest, Quantum BDD, Codeless).

Smart Lab
Always on and stable. Always up to date. Supports all mobile OS and platforms.



Smart Execution
Fast and parallel test execution with multi-team orchestration abilities and management.

Smart Analytics
"Single pane of glass" provides visibility and scales to support millions of test results.



24/7 VIP Support



Dedicated Success Manager



Training



Black Belt Testing Experts

Q&A



Thank You