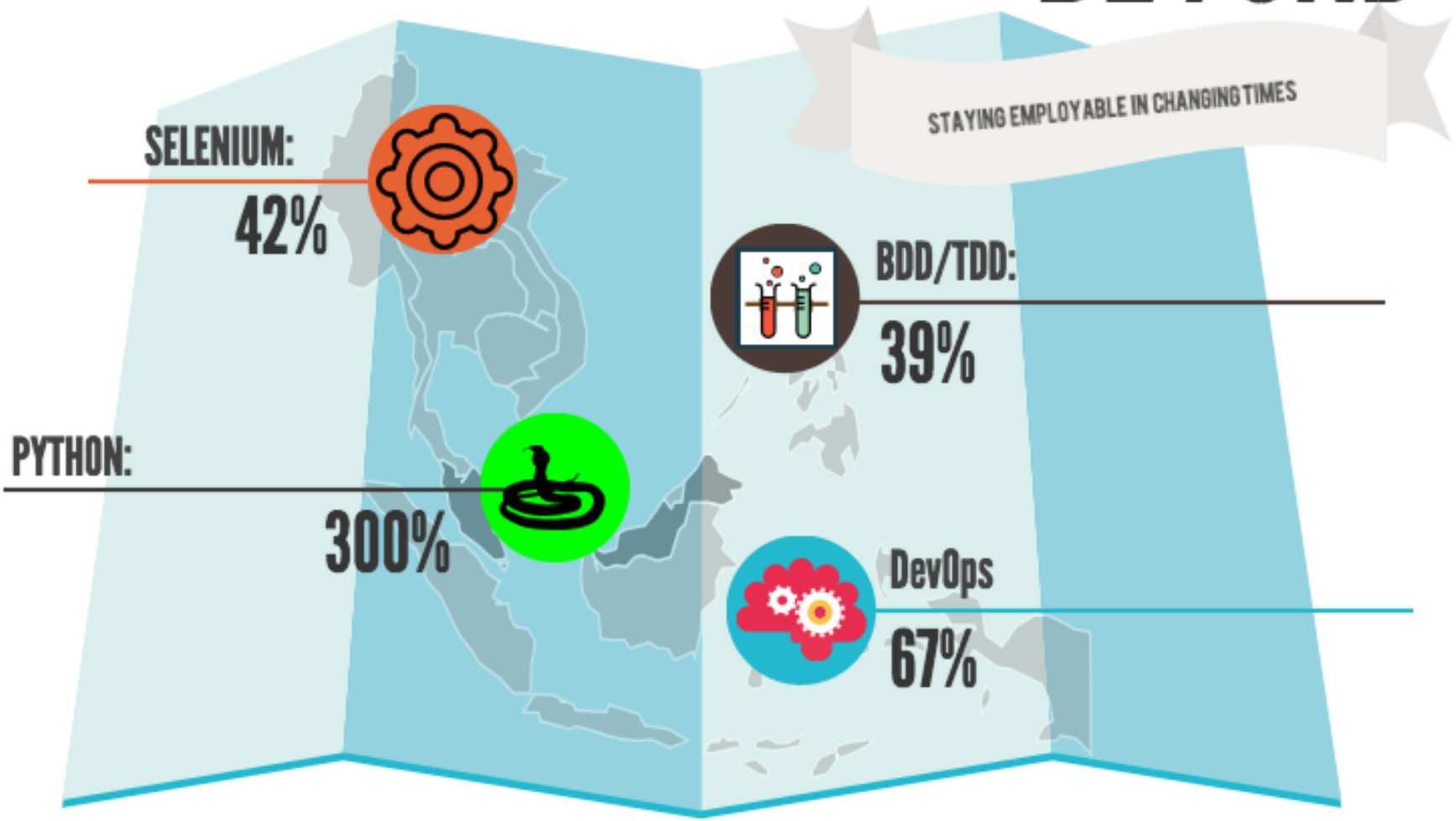
JOE COLANTONIO
AUTOMATION AWESOMENESS

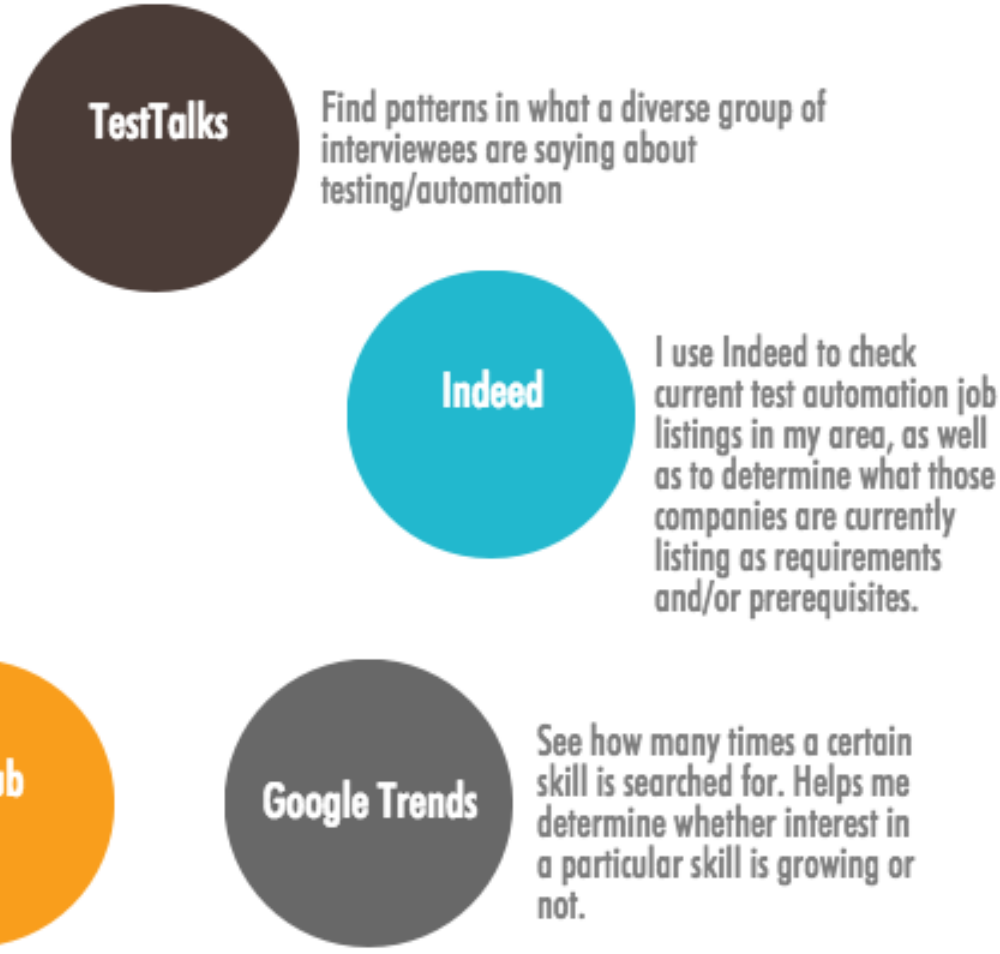
www.joecolantonio.com

www.testtalks.com

TEST AUTOMATION TRENDS FOR 2016 AND BEYOND

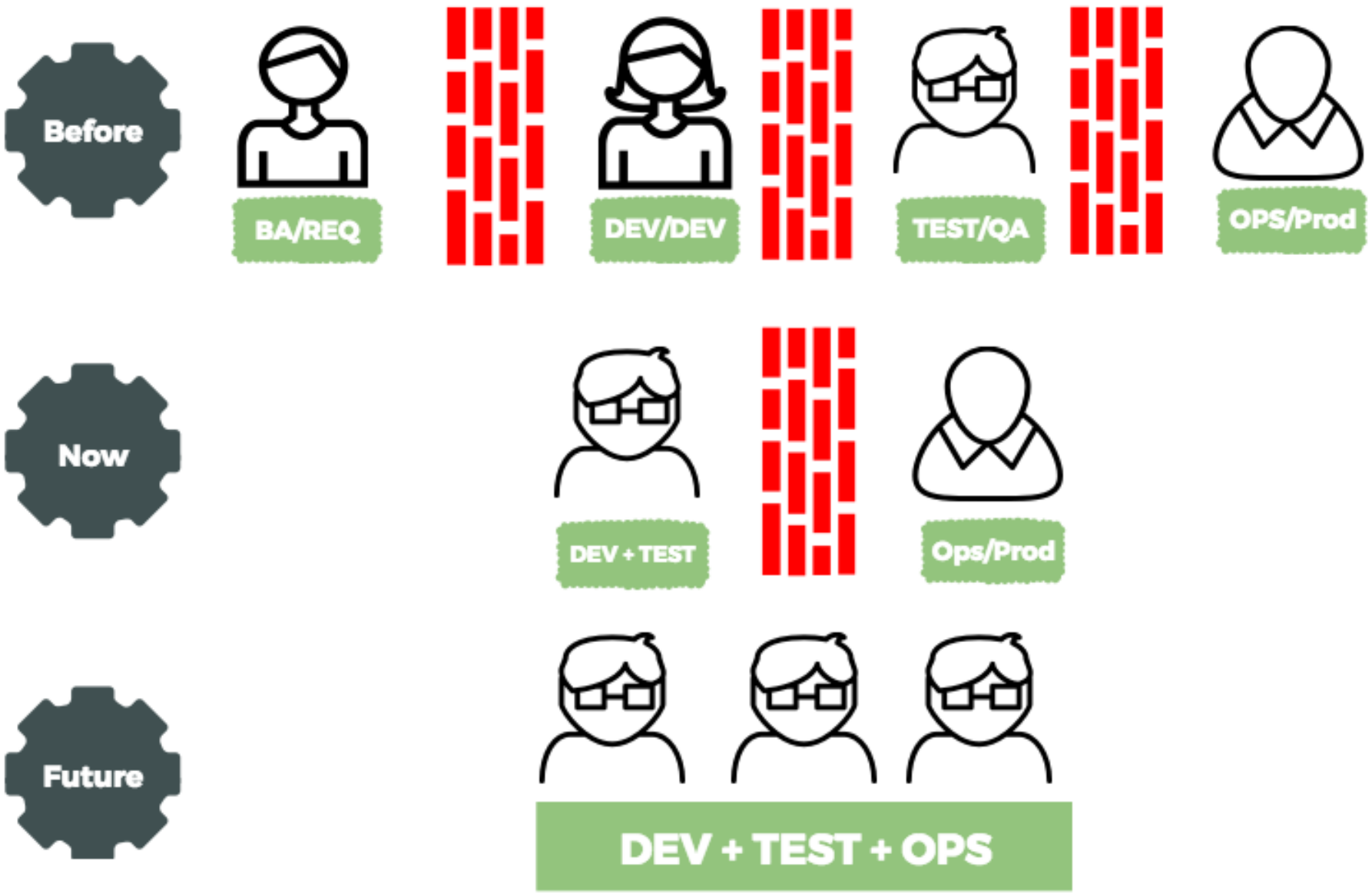


Key Indicators



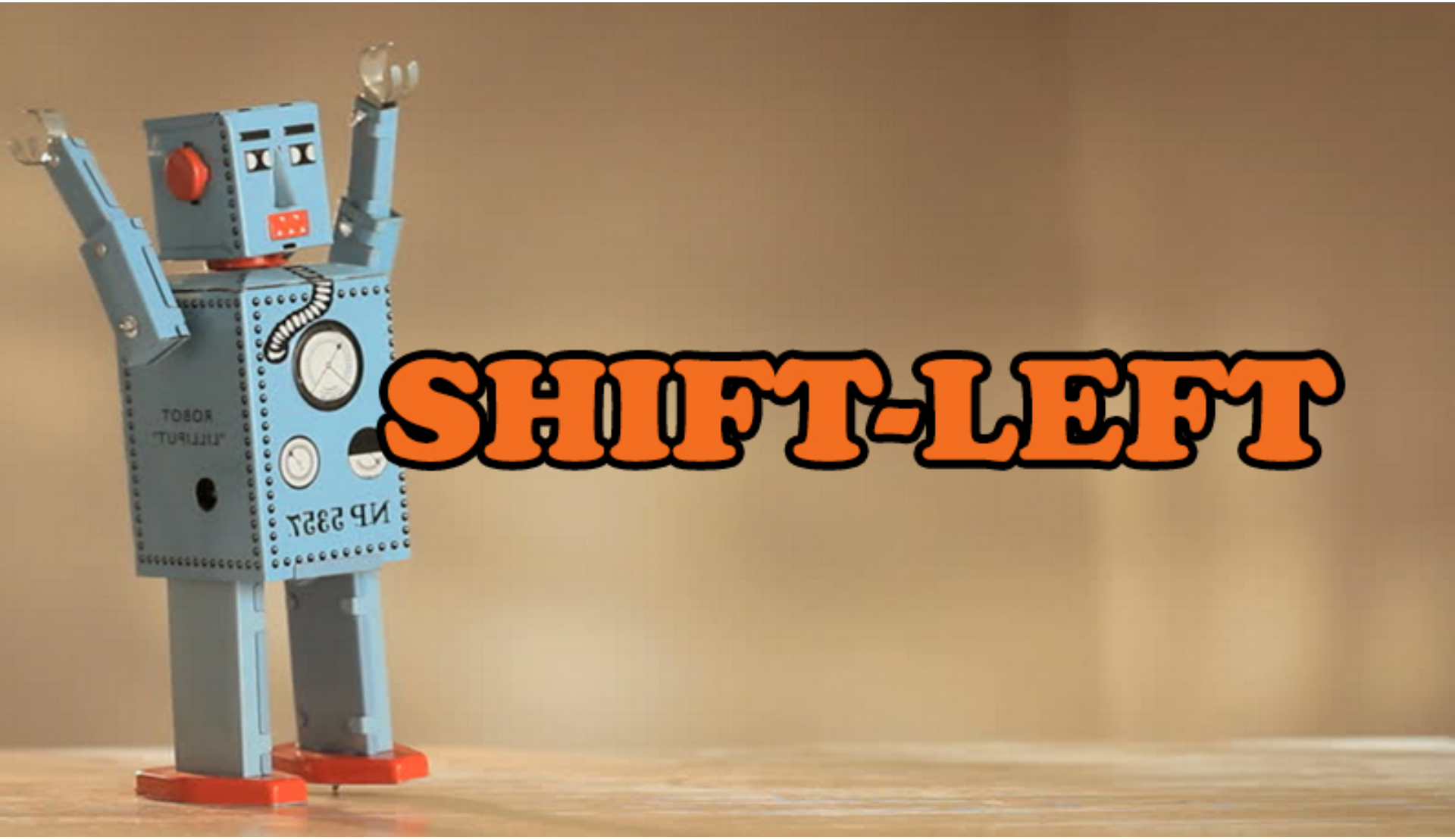
*NOTE: I don't claim that this is a scientifically accurate method but rather a quick and dirty way to "guesstimate" what skills I should focus on.

We're All Testers Now!



Testing is not a role – it's an activity with a deliverable.

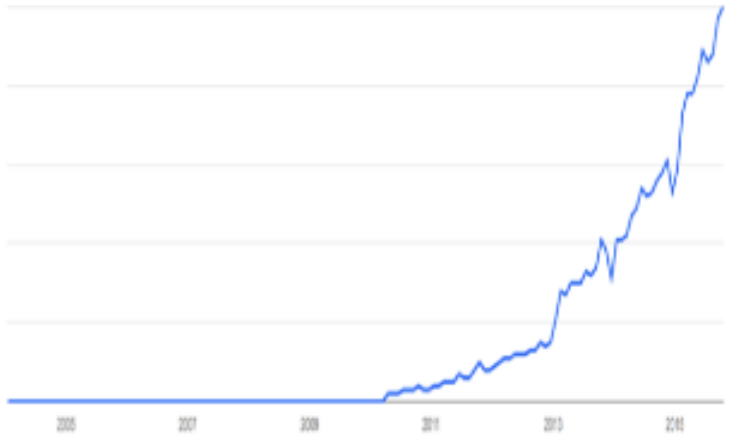
Paul Gerrard


SHIFT-LEFT

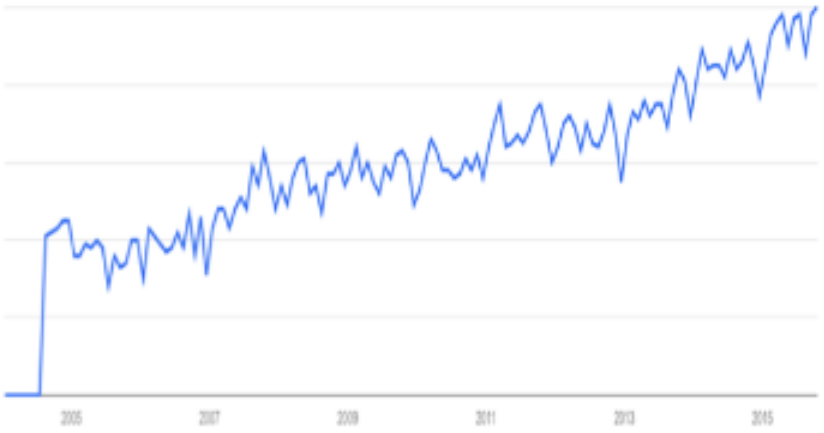
DevOps World

Indeed Trends

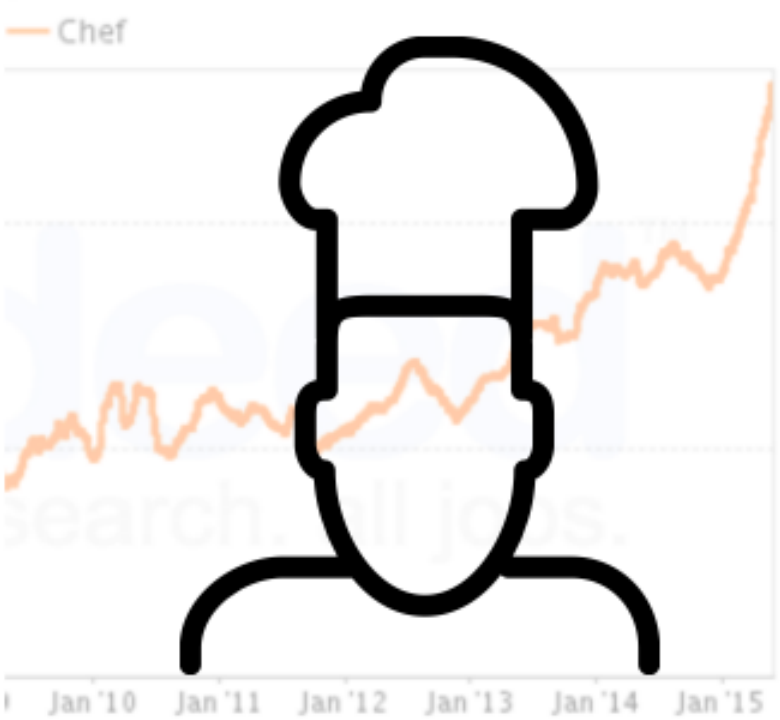
Google Trends

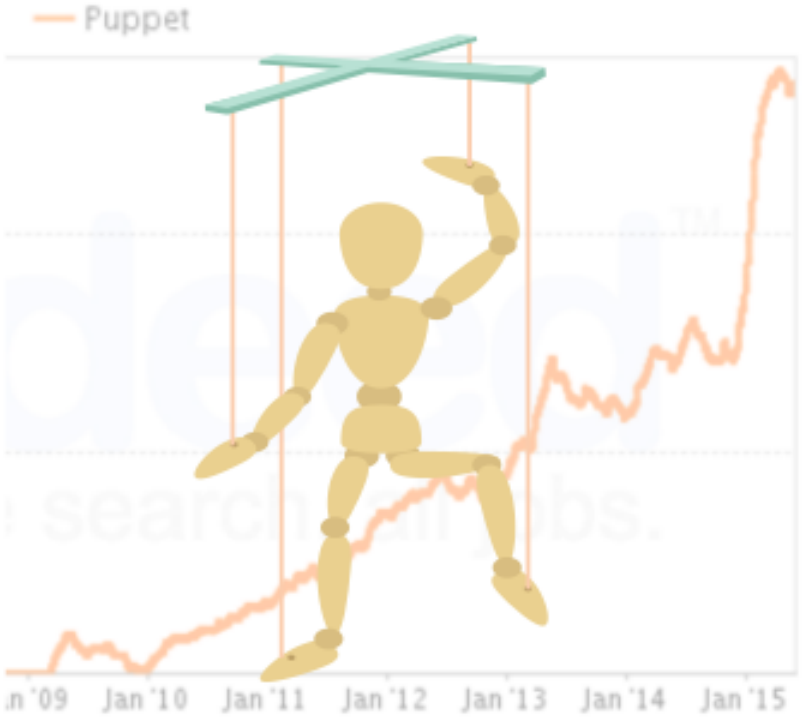


67% using DevOps principles



Configuration Management Automation





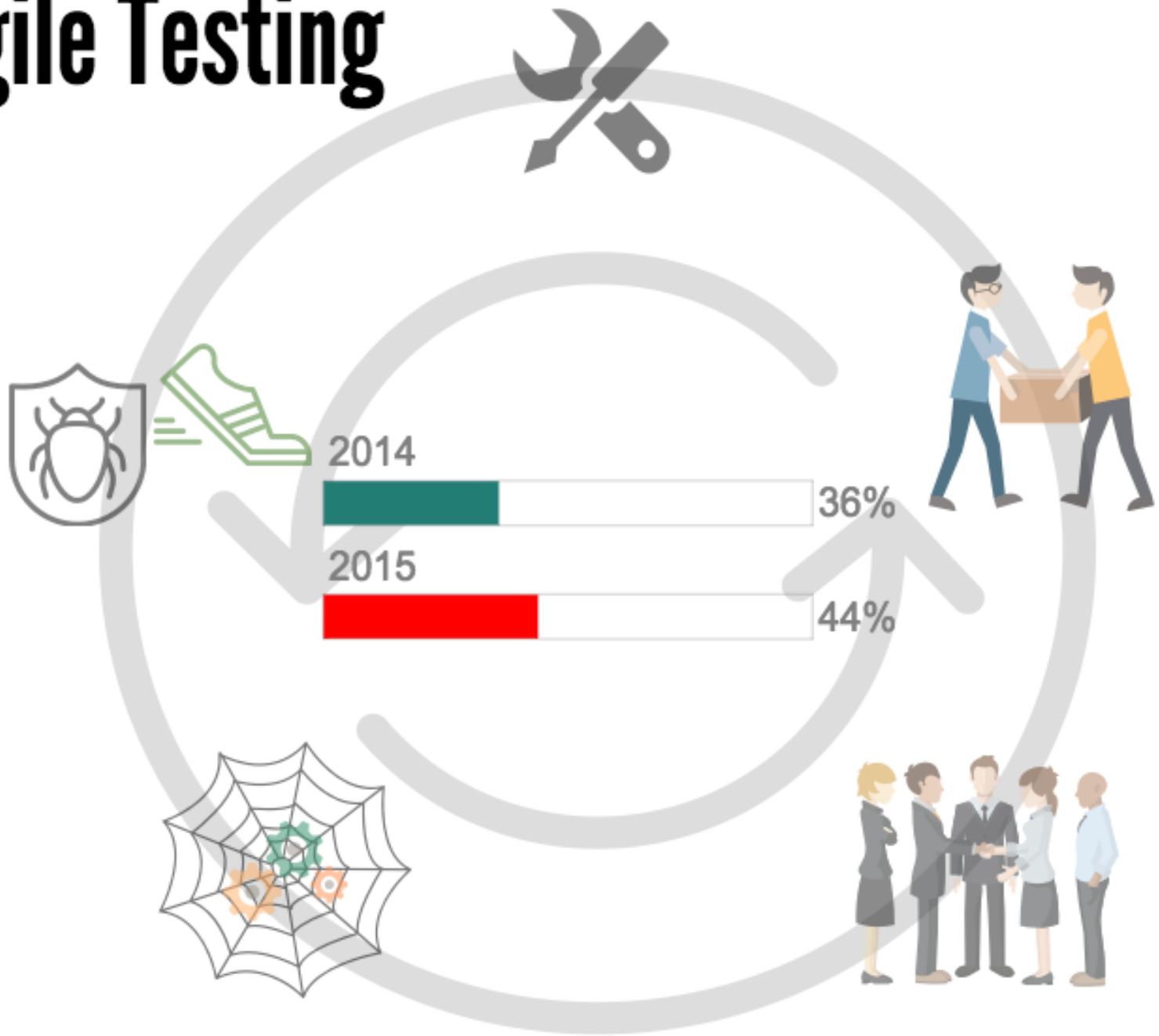
As QA Engineer you could be working on projects anywhere from our web development team (or SaaS as we call it) to our Appliance or Endpoint teams. You'll get exposure to a wide variety of technologies and the opportunity to be a contributing member of the team.

Qualifications:

Technologies used at Carbonite:

- Amazon Web Services (AWS), including configuration, deployment, and monitoring tools. Cloud Formation, Boto, Chef (or Puppet), DevOps
- C++ (Linux, Mac OS X, Windows)
- C#, .NET, Jquery, Javascript, CSS, HTML, SQL Server, Angular.js
- Web Service Development with server-side frameworks like Django/Bottle/Flask
- Distributed Search Engine Technologies like Elastic Search, Solr
- Multitiered, cloud service-oriented architecture for high concurrency
- Rich-client tools (AJAX, JSON, JQuery)
- Android and iOS App development
- Python / Perl / CGI, Maven / Ant, CentOS / Ubuntu / RedHat Linux, Rally (Primary) Jira (Secondary)
- Jenkins & Plug-Ins, Ruby, VMWare, GitHub (Primary) Subversion (Secondary)

Agile Testing



Automation from the Start

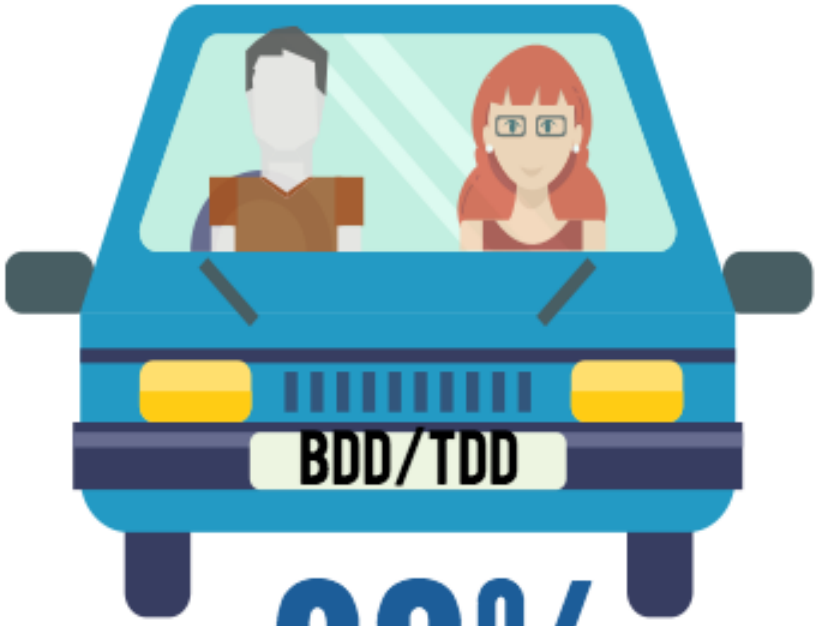
Responsibilities:

- Create Quality Strategies/Plans that meet our product and release goals
- Be a key Quality Stakeholder on the product scrum team
- Create automated tests for continuous integration, continuous test and continuous deployment
- Develop enhancements to the test infrastructure as well as research new technologies and quality practices for continued innovation
- Design and implement test strategies for functional, system, regression, performance, and stress tests; impact quality across the full SDLC
- Develop and recommend test practices and strategies for the team to improve the agile scrum process
- Collaborate with customer voice stakeholders to ensure new designs are high quality and test automation is achieved

Required Skills

- BA/BS degree in computer science or equivalent, with 4+ years of proven quality software engineering experience; developer experience a plus
- Strong knowledge of QA methodologies, practices and tools
- Comfortable with automated testing, and automation tools
- In-depth experience in performance and stress testing
- Fluent in scripting languages such as Python, Perl, and Unix/Linux/Windows batch
- Track record of delivering enterprise commercial applications to market
- Experience using Software Configuration Management products

Customer-Driven TDD/BDD



39% Using TDD/BDD

Job Title: Senior Associate Quality Assurance

Job Code: #6630.1604

Job Location: 131 Dartmouth Street, Boston, MA 02116 and various, unanticipated sites throughout U.S.

Job Type: Full Time

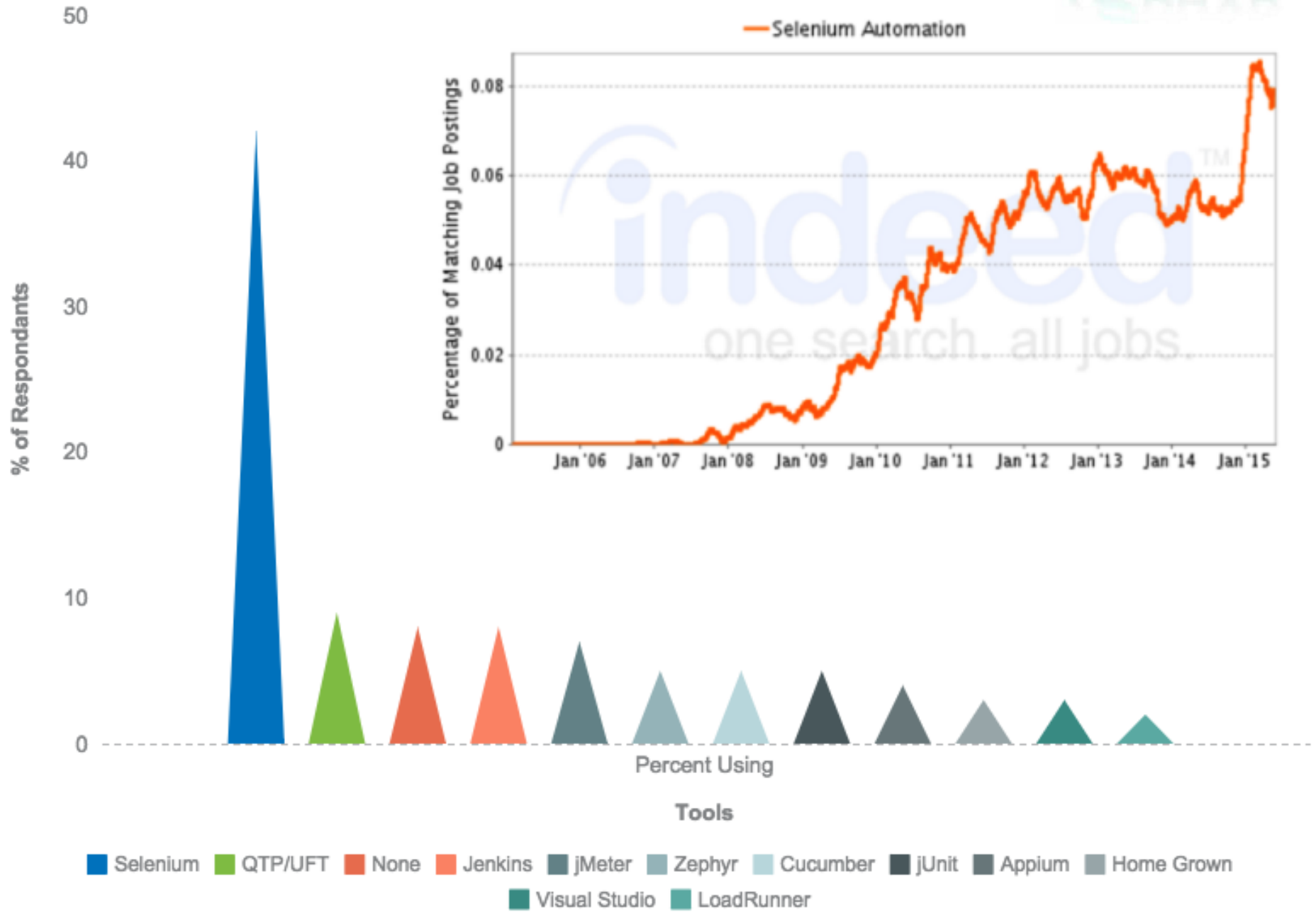
Duties: Ensure software quality assurance by streamlining testing; engage in practices defined by Acceptance Test Driven Development (ATDD)/Behavior Driven Development (BDD); drive testing of software solutions in the financial and commodities industry; develop java technology stack, implementing test automation; provide services for test planning, coordination and documentation for User Acceptance Testing (UAT), Data Migration Validation (DMV) and Parallel Acceptance Testing (PAT) phases; plan, estimate and develop java based test automation using ATDD/BDD tools; collaborate with developers to enhance testing of the system and source code under test; configure and schedule test automation within a Continuous Integration (CI) environment; create automated test cases based on client documentation and execute and report defects.

Requirements: Employer will accept Bachelor's degree in Computer Science, Engineering, Business or related field, followed by five years of progressive, post-baccalaureate work experience in job offered or five years of progressive, post-baccalaureate work experience in a related occupation. Experience must include: quality assurance processes, software lifecycle, testing, planning, execution and defect tracking; agile methodology (SCRUM); solution design in the development of automated tests using Java 1.6; Quality Center/Application lifecycle management; develop unit tests using frameworks including JUnit, Ant, Maven, CI tools Jenkins, Selenium and Cucumber; writing SQL code; IDE's; SVN; and working with treasury management systems in the banking domain. Any suitable combination of education, training, or experience is acceptable. Must be available to work on projects at various, unanticipated sites throughout the United States.

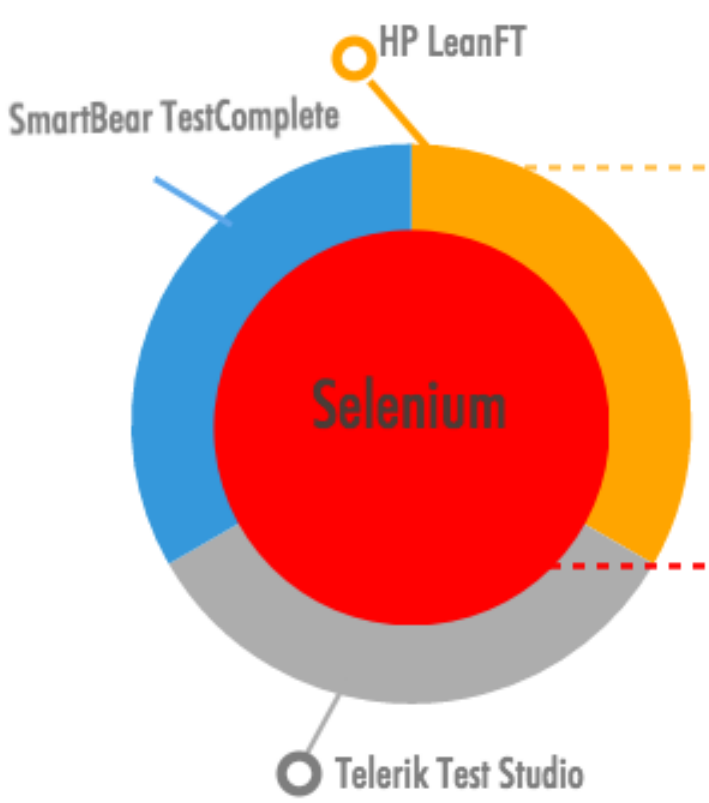
Real Devs Love to Test

"It doesn't feel right if I don't have a test when I write product code. I want to validate what i've written. "
~Johan Haleby

"We need to stop doing what Edward Deming said -
- Let's make toast the American way. I'll burn it and you'll scrape it."
- Matt Wynne


ZEPHYR
Selenium Automation
Percentage of Matching Job Postings
0.08
0.06
0.04
0.02
0
Jan '06
Jan '07
Jan '08
Jan '09
Jan '10
Jan '11
Jan '12
Jan '13
Jan '14
Jan '15
indeed
one search. all jobs.
% of Respondants
50
40
30
20
10
0
Percent Using
Tools
Selenium
QTP/UFT
None
Jenkins
jMeter
Zephyr
Cucumber
jUnit
Appium
Home Grown
Visual Studio
LoadRunner

Selenium + Vendor Tools



Vendor Tools

- Acts like a wrapper on top of Selenium
- Can use vendor based reports and tools

Selenium WebDriver

- W3C WebDriver Standard
- All the tool vendors will have to support
- All browsers will have their own webdriver implementations

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Gartner

Magic Quadrant for Software Test Automation

10 December 2015 ID:G00270199

Analyst(s): Thomas E. Murphy, Joachim Herschmann, Maritess Sobejana

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▼ VIEW SUMMARY

Testing is one of the key processes in software development. As the requirement to support multiple browsers and devices increases, it is driving the demand to automate the functional testing of applications. We have focused on specific use cases to help define vendor positions.

STRATEGIC PLANNING ASSUMPTION

By 2020, Selenium WebDriver will become the standard for functional test execution and this will marginalize vendors that can't provide strong higher-level test functionality.

Market Definition/Description

This document was revised on 21 December 2015. The document you are viewing is the corrected version. For more information, see the Corrections page on gartner.com.

The functional software test automation market is a subsegment of the overall software test tools market (which also includes test planning, performance testing, test data management and other functions). Functional test automation focuses on the automation of tests in a way that simulates the

NOTE 1
HP

As of 1 November 2015, HP separated into two independent publicly traded companies: Hewlett Packard Enterprise (HPE) and HP Inc.

NOTE 2
MOBILE APPLICATION TESTING

We're using Telerik's Test Studio. We really like the UI. It's pretty easy for our QA engineers to use the object identification, test runner, and the element repository that Test Studio provides and it plugs into our framework. We can automate in a manner where I think it's really fast and scalable

Peter Kim

Visual Validation Testing

I am really impressed with @ApplitoolsEyes. Best solution for Automated Visual Checking I have come across.

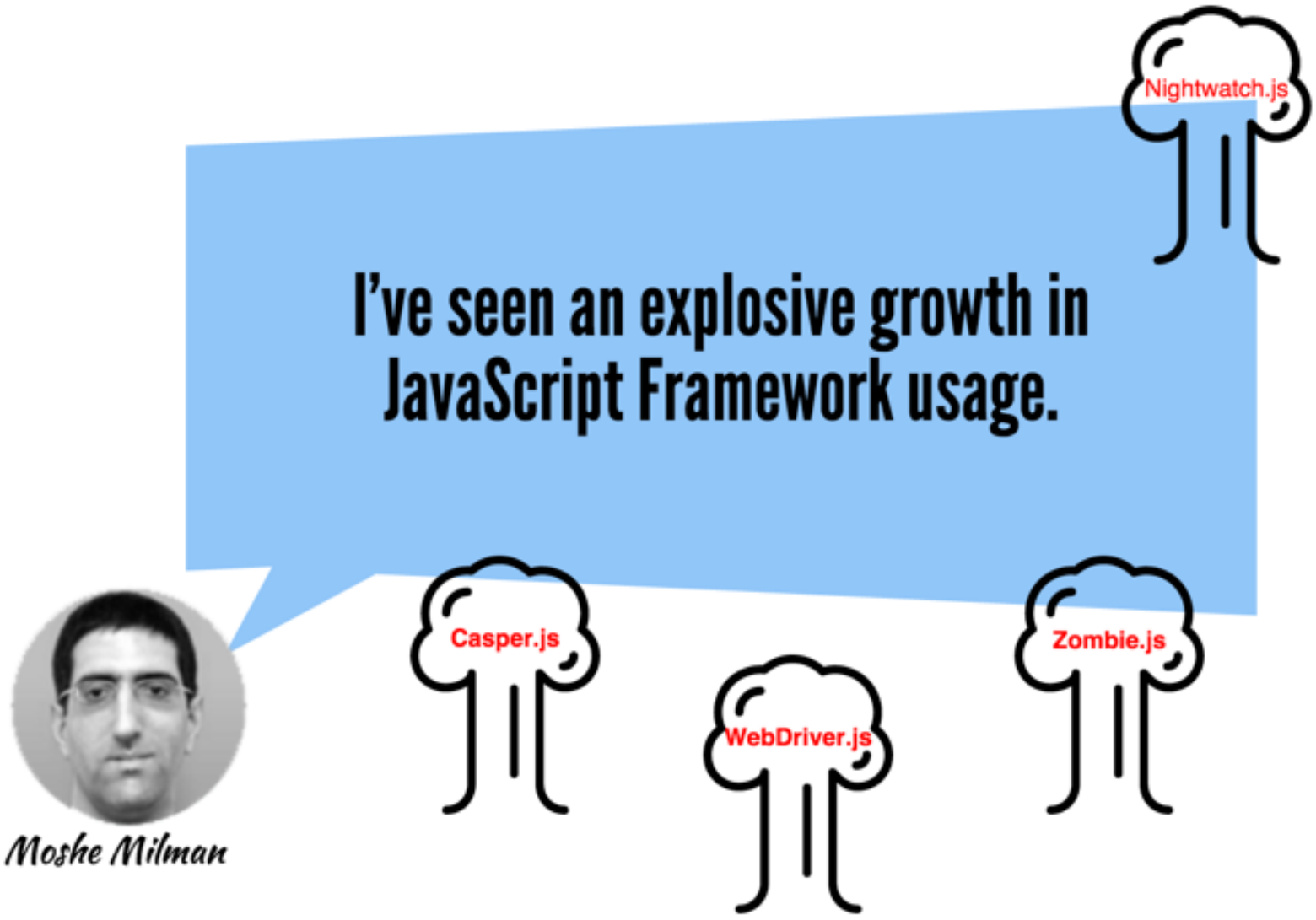
Richard Bradshaw- Friendly Tester.com

Jan 2016	Jan 2015	Change	Programming Language	Ratings	Change
1	2	↑	Java	21.465%	+5.94%
2	1	↓	C	16.036%	-0.67%
3	4	↑	C++	6.914%	+0.21%
4	5	↑	C#	4.707%	-0.34%
5	8	↑	Python	3.854%	+1.24%
6	6		PHP	2.706%	-1.08%
7	16	⇈	Visual Basic .NET	2.582%	+1.51%
8	7	↓	JavaScript	2.565%	-0.71%
9	14	⇈	Assembly language	2.095%	+0.92%
10	15	⇈	Ruby	2.047%	+0.92%
11	9	↓	Perl	1.841%	-0.42%
12	20	⇈	Delphi/Object Pascal	1.786%	+0.95%
13	17	⇈	Visual Basic	1.684%	+0.61%
14	25	⇈	Swift	1.363%	+0.62%
15	11	⇊	MATLAB	1.228%	-0.16%
16	30	⇈	Pascal	1.194%	+0.52%
17	82	⇈	Groovy	1.182%	+1.07%
18	3	⇊	Objective-C	1.074%	-5.88%
19	18	↓	R	1.054%	+0.01%
20	10	⇊	PL/SQL	1.016%	-1.00%

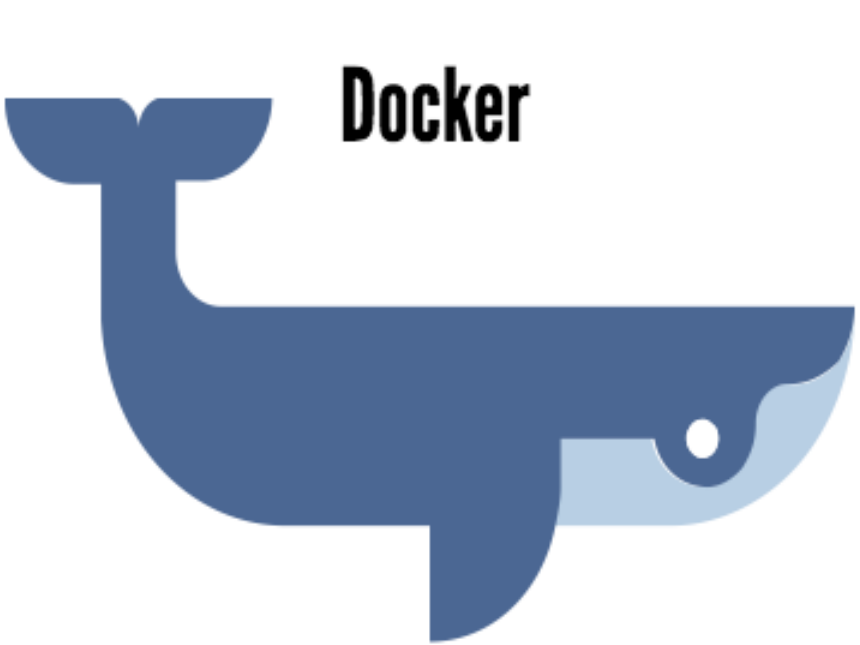
TIOBE SOFTWARE
THE SOFTWARE QUALITY COMPANY

Selenium across all the programming languages -- Java owns, this year, something like 65% of the downloads for Selenium.

Dave Haeffner


Nightwatch.js
I've seen an explosive growth in JavaScript Framework usage.
Casper.js
WebDriver.js
Zombie.js
Moshe Milman

Virtualization -- Containerization



"I think maybe the big trend coming from a technology point of view, is virtualization and containerization… anything that's about isolating a piece of code from it's surrounding environment"

Steve Hazel

Location: Boston, MA

Job Summary

Our client is looking for a talented Software Development Engineer in Test (SDET) with a background in large scale .NET environment support. The successful candidate will enjoy using technology to automate solutions and optimize outcomes, focusing on continuous integration and continuous deployment in a fast-changing world of software delivery.

Key Qualifications

Demonstrate proficiency in writing build and deployment automations
Know how in maintaining and debugging systems in a .NET environment
Have a good grasp of Microsoft systems, networking and security
Experience implementing and administering monitoring tools like Splunk and Hubble.

Experience managing source in git (GitHub ops, branching, merging, etc) a big plus
Experience in CI build tools such as Jenkins a big plus

Experience with tools such as Docker and Docker based deployments is a plus
Experience in cluster management/orchestration software is a big plus- Support and optimize our .NET environment build, delivery, and deployment pipeline

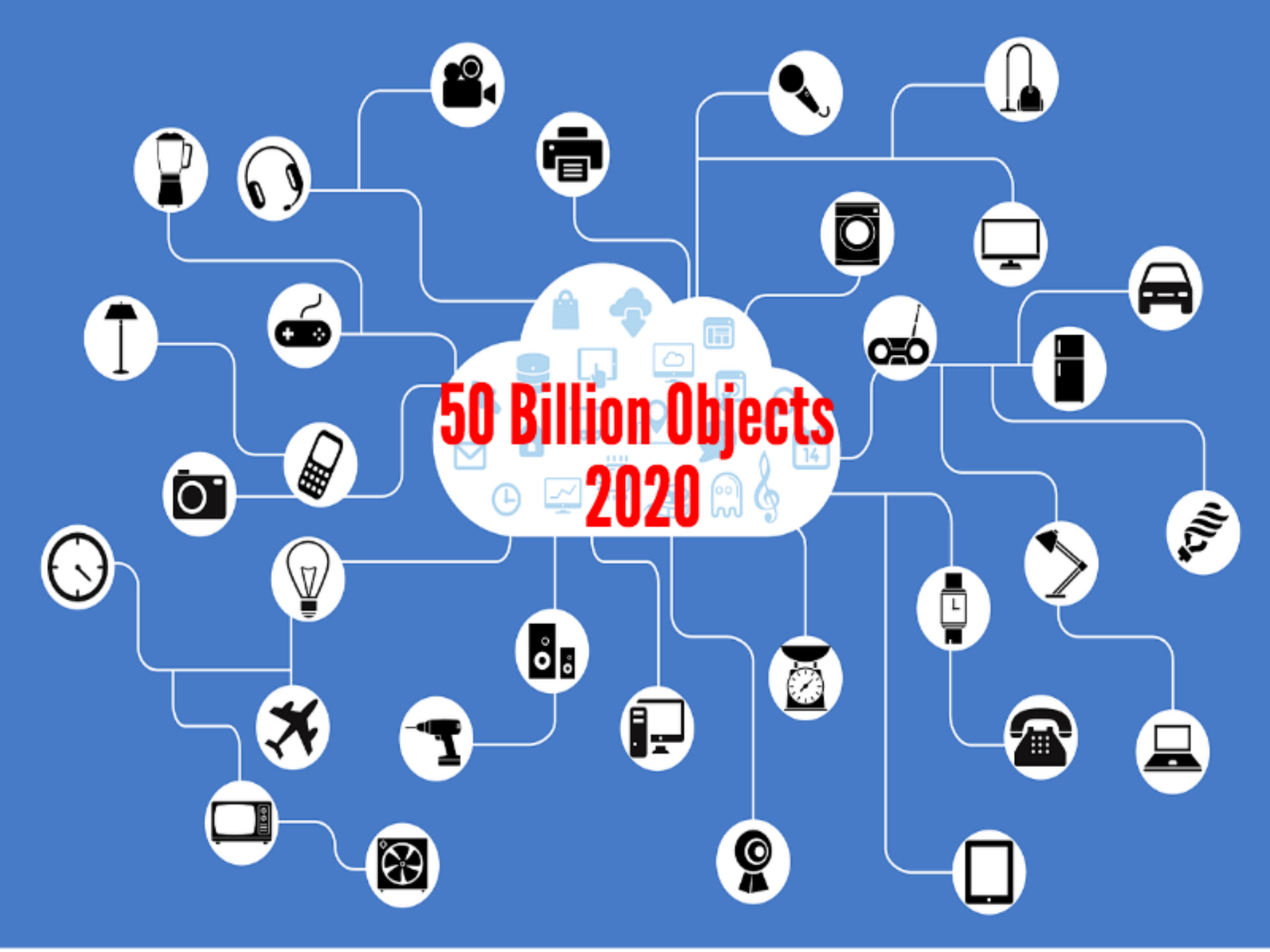
Description
- Support and optimize a .NET environment build, delivery, and deployment pipeline - Communicate and/or address build & deployment issues as they come up - Implement facilities to monitor all aspects of our pipeline
- Automate build & deployment processes

"With Docker it gives us this tremendous flexibility in creating test environments so we can spin up and throw away. We don't have to put any effort into ordering any hardware or managing any lab and paying people who just do that or just manage our QA lab. We can literally just spin up a lab that's everything we need and then when the test is done we can dispose of it. That kind of flexibility is new."

Michael Sage

You don't have to wait until you get into some big test env or acceptance env..that if I'm the developer and I'm writing code and I'm the tester and I'm writing tests at the beginning of the sprint, we can be doing all of that on environments that are like each other and like production. If there's one thing that I see that actually starts getting people thinking about the same things in the same ways, it's really Vagrant.

Jeff Sussna


50 Billion Objects
2020

"When we talk about iOT we are talking more about hardware then software. Being able to also test hardware is going to be a cultural change for testers."
~Jonathon Wright

Qualifications:

Requirements:

- Minimum 5 years' experience developing software solutions.
- Strong software development skills – C/C++, Python, Java, Perl
- Experience with Mobile, Cloud and WiFi applications testing
- Familiarity with software build and delivery process.
- Proficient in Windows and Linux -- system & network management, troubleshooting.
- Strong analytical and problem solving skills, and attention to detail.
- Adaptive fast learner – able to ramp up quickly on domain area.
- Self-motivated, flexible with a passion to make a difference.
- Excellent verbal and written communication and documentation skills.
- Proficient using MS Office productivity packages – Excel and Word.
- Willingness and ability to mentor others.
- BS or MS in Computer Science, Electrical Engineering, or related field.

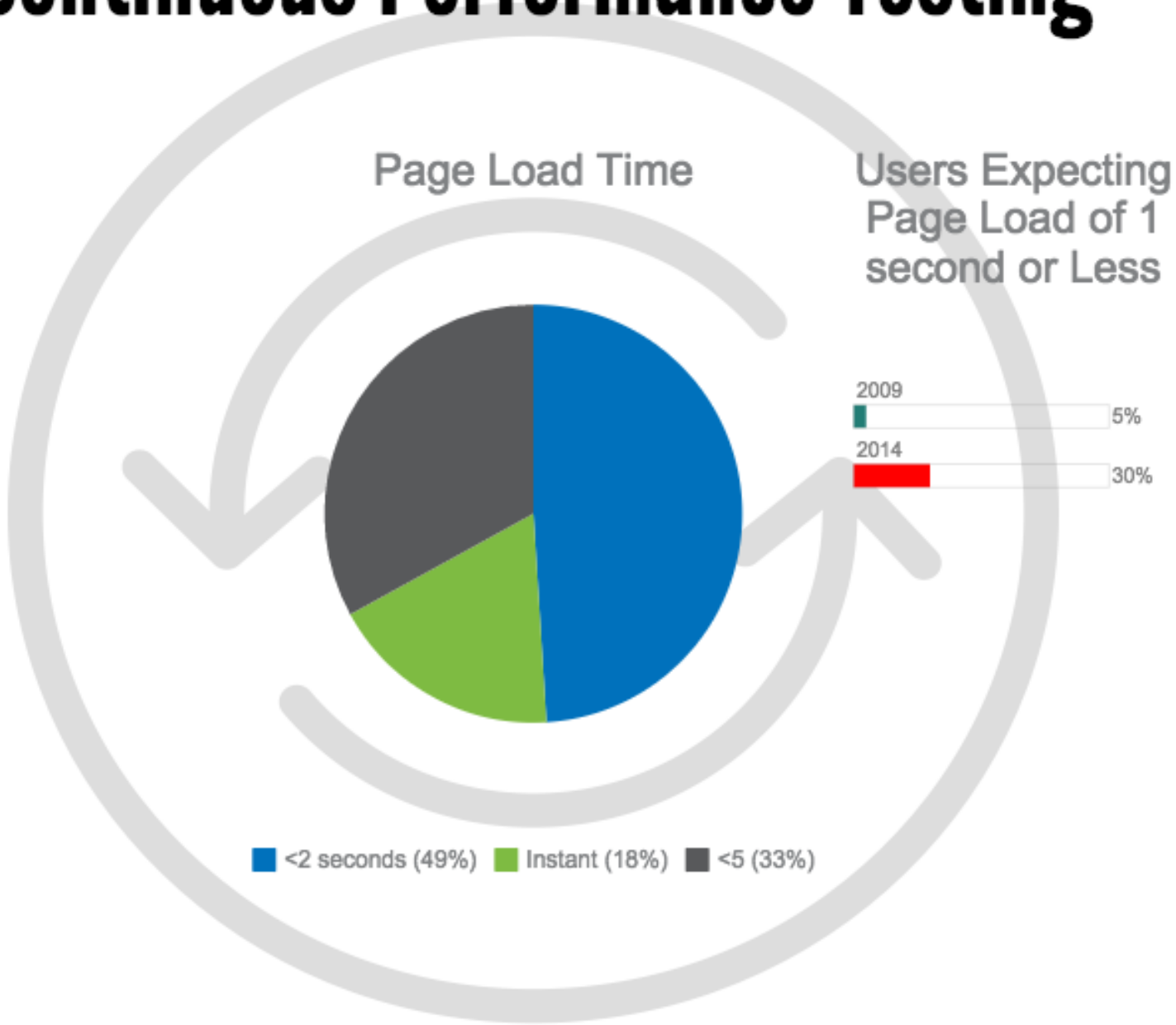
Desired Qualifications:

- Experience in Agile methodology a plus
- Team engagement, able to bridge the gap between software developers and software test engineers.
- Familiarity with Robotics: embedded systems for control, navigation, manipulation, sensors, video.
- Familiarity with Communications: Wi-Fi, Ethernet, wireless, Bluetooth, TCP/IP, Cloud environment.

""Micro Python has come out, and it's supposedly super fast ..I think the industry as a whole may be having to reconsider that notion that C++ is a requirement for every fast interaction for embedded testing."

Brian Okken

Continuous Performance Testing

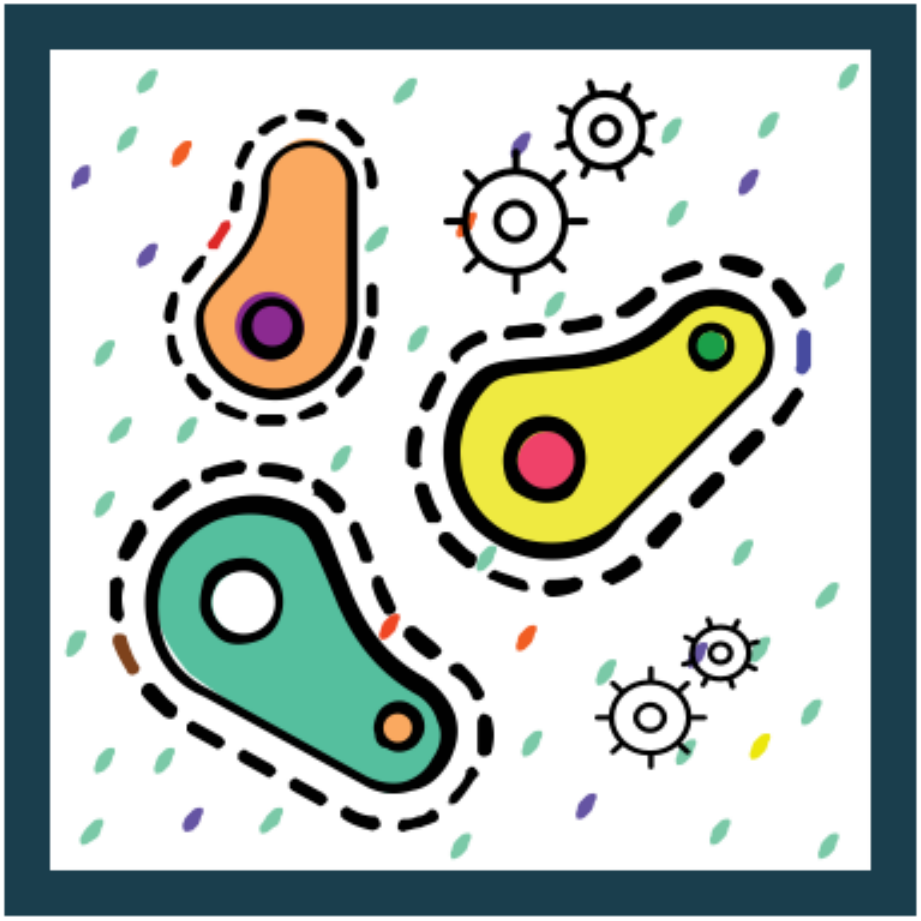


"If you adopt a continuous performance testing approach what you end up with is much greater familiarity with your base lines. You're running tests so frequently you get a much better set of data over time and. You get a much better sense of what the deviations are. Both of those become factors in having realistic load tests and realistic expectations for what those thresholds should be."

Michael Sage

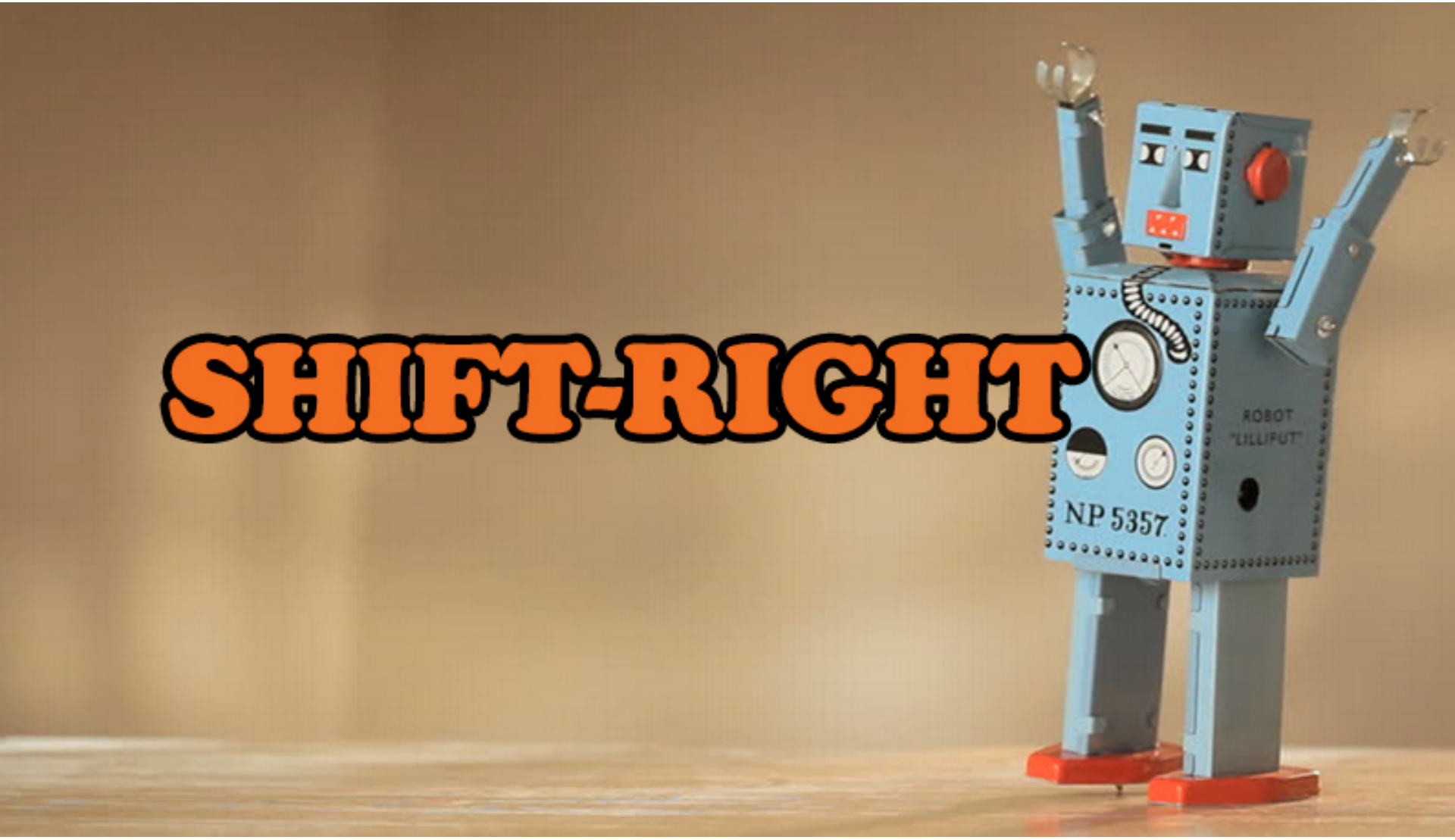
Test **Au**tomation **Ru**nning **S**moothly

Micro-Service



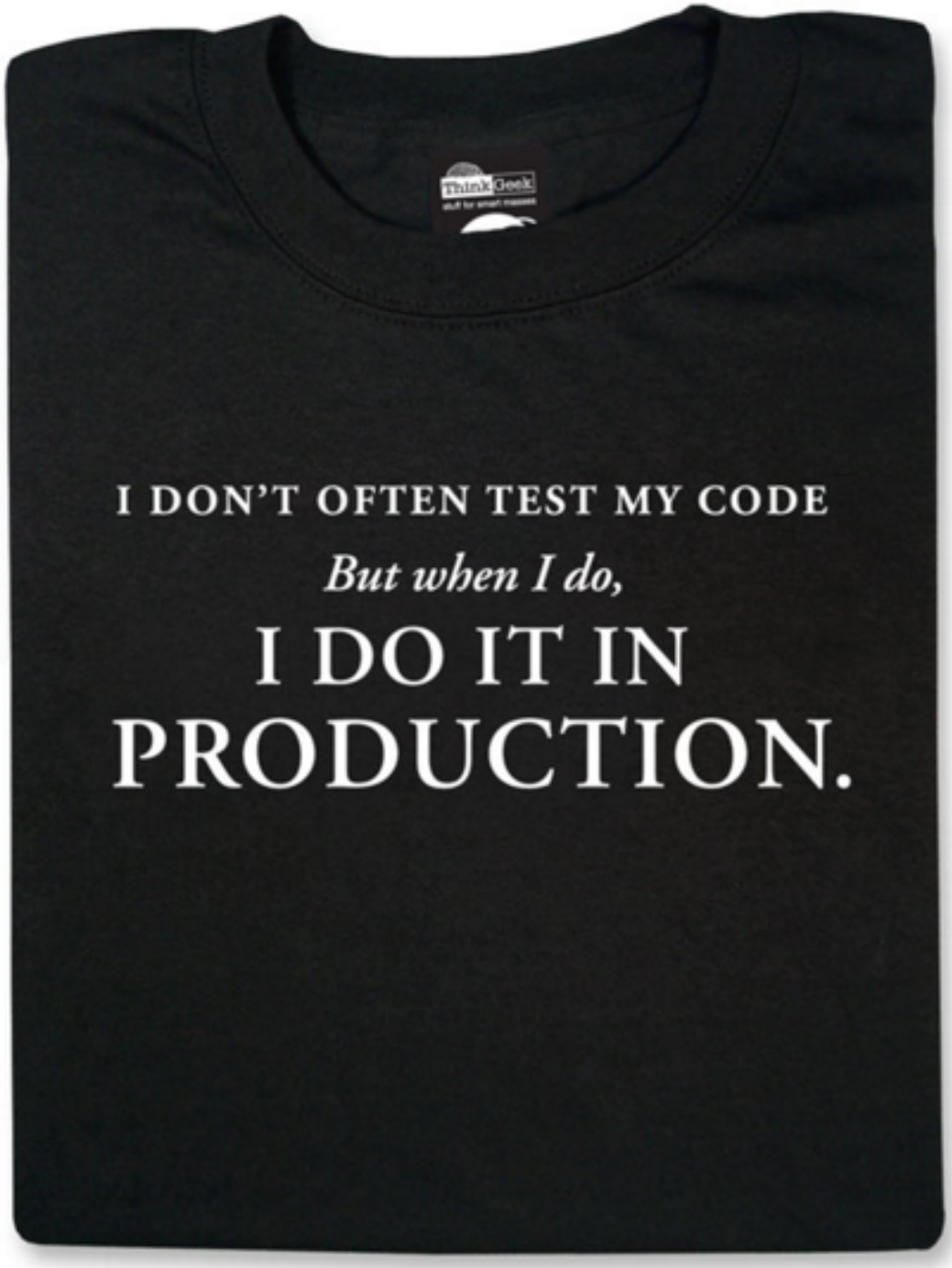
"We've seen that modern dev ops organizations are building on micro services. I mean API's are everywhere, so It's really important to test these services and not just leave it to code level tests to be considered to have comprehensive coverage."

Neil Mansilla

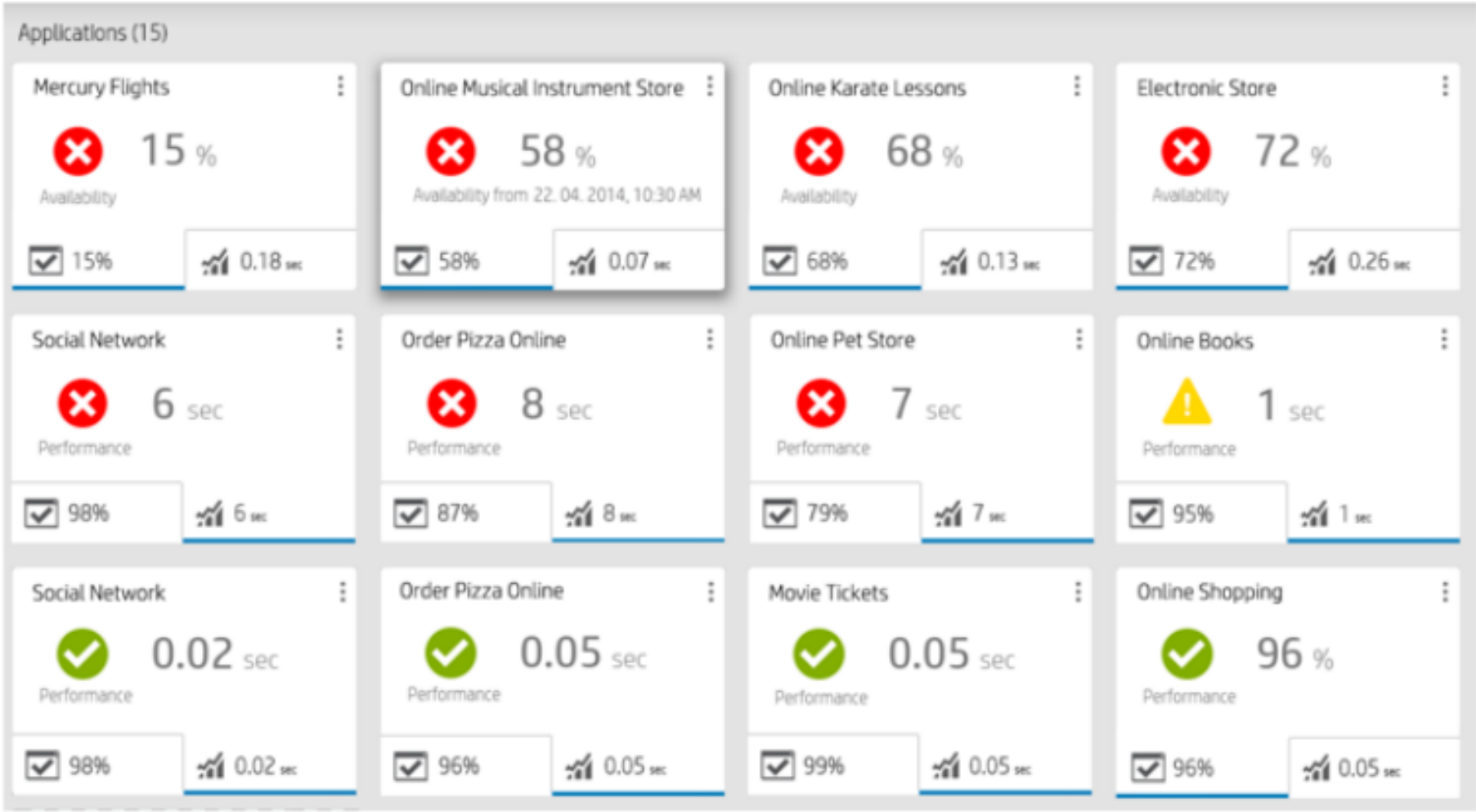

SHIFT-RIGHT
ROBOT
"LILLIPUT"
NP 5357

"Shifting QA to the right maximizes access to feedback. It provides the most realistic feedback by gathering it from real customers in real situations. We need to let go of the notion that one must stop testing upon release to production."

Jeff Sussna


ThinkGeek
stuff for smart masses
I DON'T OFTEN TEST MY CODE
But when I do,
I DO IT IN
PRODUCTION.

Predictive Analysis



When you put your system into production, and the user starts interacting with it, it can fail in all kinds of ways that you can't predict, so monitoring your application at all the different levels lets you get a better understand of how your system really breaks.

Todd H Gardner - TrackJs

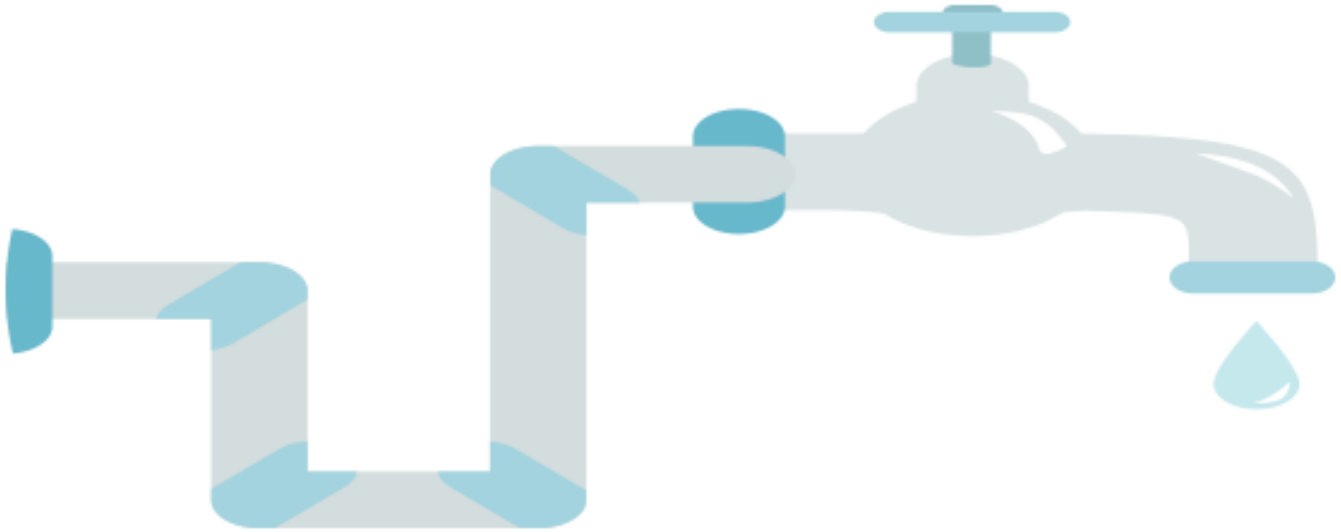
Autonomous Agents

Have a tendency to cause problems in the wild.

"We're working on VR because I think it's the next major computing and communication platform ”~Mark Zuckerberg

Google developed Android OS which has *1.4 billion* smartphones around the world.

Automate the Whole Pipeline



QA IS NOT DEAD

Lots of organizationswould like test engineers to be really technical. There is a rise in calling them dev/testers or SDET. I think that phenomenon is really picking up

Kalyan Rao Konda-Gallop

I think that's what we need testers to do. They need to be technically aware.

Janet Gregory - Agile Testing

The world is hungry for people who both understand the quality perspective and have some engineering and coding skills.

Steve Hazel - SauceLabs CoFounder

QA folks need to raise their gaze up from just building and running tests & think about the larger perspective. Take a more systems thinking view of the whole thing.

Jeff Sussna - Designing Delivary

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