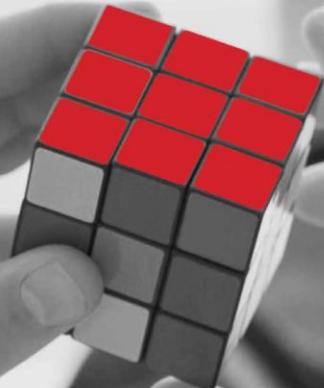


# **The Technology Future**

# The Technology Future



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Leading in IT Education  
matrix company

John Bryce Training, 29 Homa Umigdal St, Tel Aviv 6777129

// [www.johnbryce.com](http://www.johnbryce.com)

## Before we begin the show

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### *Who am I*

- I am Lior katz Matrix CTO with all concern to the testing world
- Working at the automation, Performance and manual testing more than 19 years
- Playing Guitar Piano and Harmonica you can access some of my shows at
- <https://www.youtube.com/watch?v=eaNEyrpm8mE>
- My son Yiftah is playing with me almost every show
- And... Cherchil our amazing dog is listening (or suffer) ☺



# Technology generation

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## AND...



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# The mobile revolution

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## Till now...



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## We started here

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## Then we grew up

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**Mobile band new generation**

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[ Playing ]



**With the Cicret Bracelet,**

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# Google Glass

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GLASS



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## Just an FYI

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- 2017 will be the first year of real-world autonomous car testing
- IHS Automotive says there will be 12 million self-driving cars sold annually by 2035, but autonomous car ubiquity won't happen until sometime after 2050.
- So in the long term , it's possible that the automated car industry will directly and in directly cause layoffs to 20-30% of the population.
  - truck drivers – 1.6 million truck drivers (US)
  - delivery truck operators – 800,000 (US)
  - 180,000 taxi drivers, 160,000 Uber drivers, 500,000 school bus drivers, and 160,000 transit bus drivers, for a grand total of 1 million jobs. (US)
  - crash rate reduction of up to 90 percent - 445,000 auto body repairers without a job



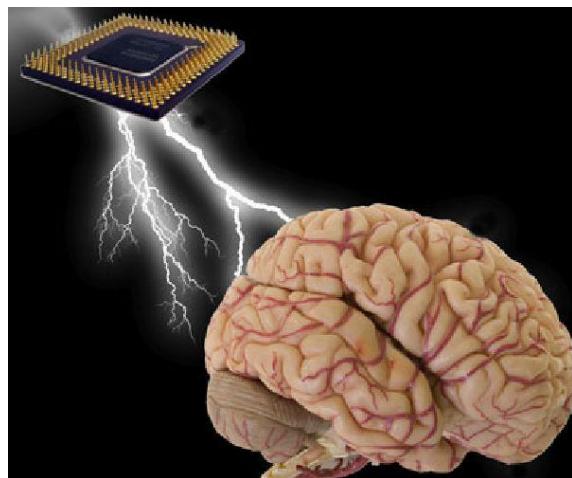
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**And Now...**

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### Computer Brain Chip



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**YOU THOUGHT  
IT**

**Mail** Online

Google

**WILL NOT TAKE**

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Site  Web  Search

**Is Google planning a microchip for people's brains? Engineering boss at internet giant says sci-fi-style technology will begin by helping disabled people control wheelchairs**

- Google faces major backlash over claims it colluded with U.S. authorities to open a 'back door' to users' personal information
- But it nevertheless intends to leverage the wealth of data it holds on people to offer them increasingly personalised search results
- The ultimate ambition is to get inside users' heads with microchips that will download search results straight into their brains

By DAMIEN GAYLE

הרשם עכשיו  
וקבל הטבה  
בשווי ש"ח

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## Google

Inside Google HQ: What does the future hold for the company whose visionary plans include implanting a chip in our brains?

Ultimately, as Page and co-founder Sergey Brin have asserted, **the goal is to insert a chip inside your head for the most effortless search engine imaginable**. Some will find this prospect exciting. Others might want to call for Dick Tracy.

**אם זה לא מספיק...**

האם המזקיעים שלכם יתקיים בעוד 20 שנה?



# האם המקצוע שלכם יתקיים בעוד 20 שנה?

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## הכינו את קורות החיים

המקצועות שהסבירות להחלפת העוסקים בהם במחשבים או ברובוטים היא הגובהה ביותר



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# האם המקצוע שלכם יתקיים בעוד 20 שנה?

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המקצועות שהסבירות להילומות היא הנמוכה ביותר

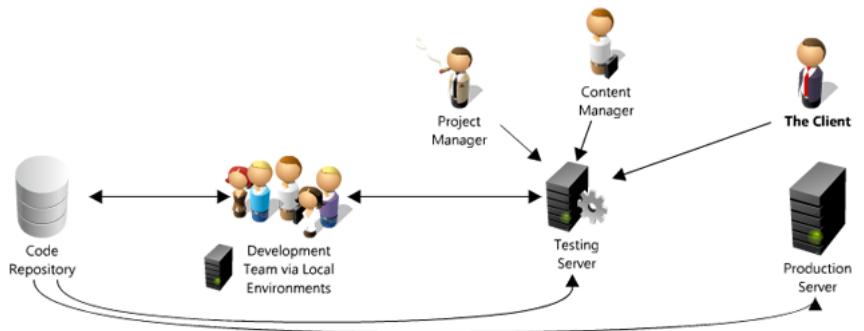


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# Development and Testing Environment

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Made with [lovelycharts.com](http://lovelycharts.com)

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## Dev environment

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- Agile – the first change at the development structure
- CD – Continues development (the show is rolling)
- ALM – Application life cycle management
- CI – what about the tools platform
- BDD - Behavior Driven Development (Last and NOT the least)



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# Continuous software development

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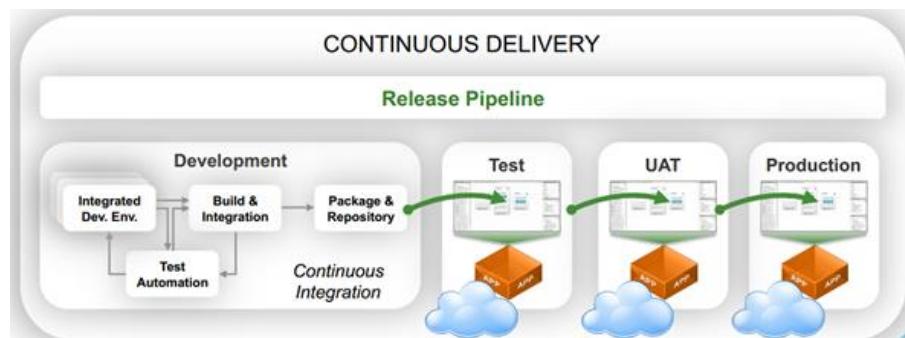
- Continuous software development is an umbrella term that describes several aspects of iterative software application development, including [continuous integration](#), continuous delivery, continuous testing and continuous deployment.

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# Continuous software development

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# ALM tools

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Rational ALM



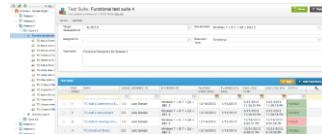
Microsoft  
ALM



**Microsoft®**



 QA Symphony



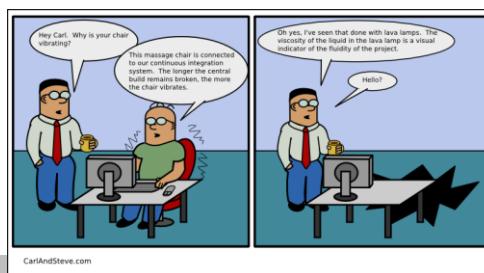
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# Continues integration the next generation

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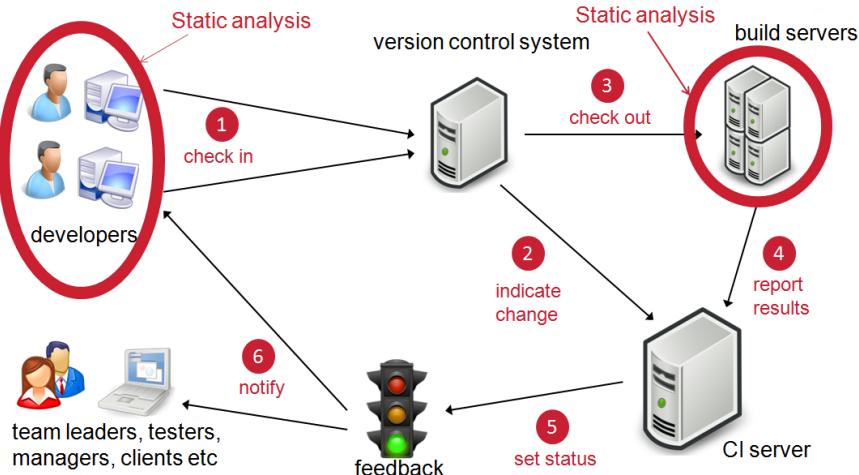
*Continuous Integration is a software development practice where members of a team integrate their work frequently, usually each person integrates at least daily — leading to multiple integrations per day. Many teams find that this approach leads to significantly reduced integration problems and allows a team to develop cohesive software more rapidly.*



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# Continues integration

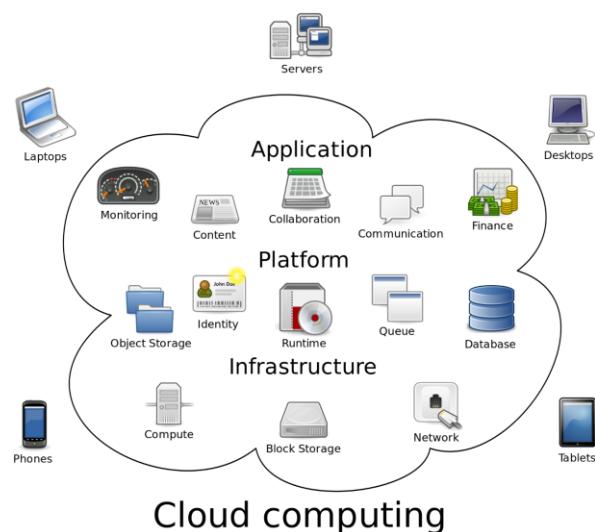
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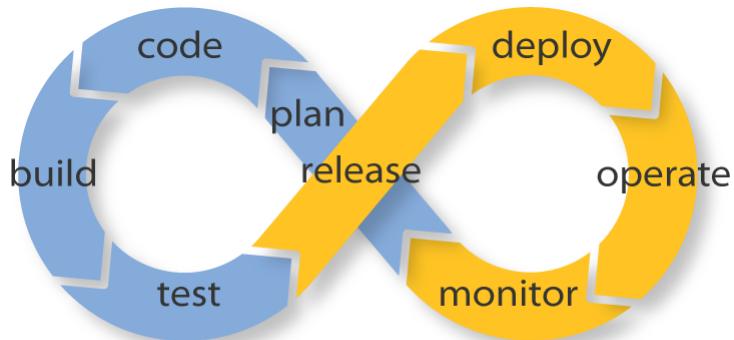


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# DevOps

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Endless Possibilities: DevOps can create an infinite loop of release and feedback for all your code and deployment targets.

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# DevOps Tools

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# The development world

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## What happens online in 60 seconds

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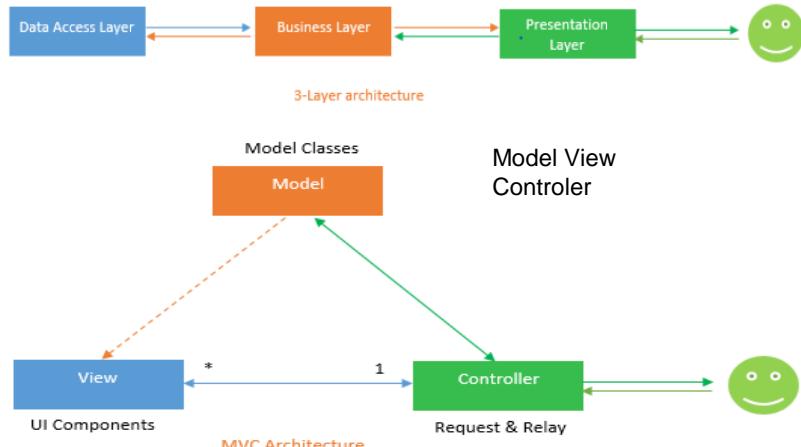
What happens  
**online**  
in 60 seconds?  
(2012 - 2014)



Picture by Centre for Learning and Teaching  
3rd November 2014

## 3-Layer architecture and MVC architecture

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## Java VS .NET

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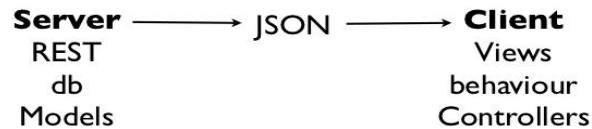


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## The New Web Architecture



Sunday, July 10, 2011



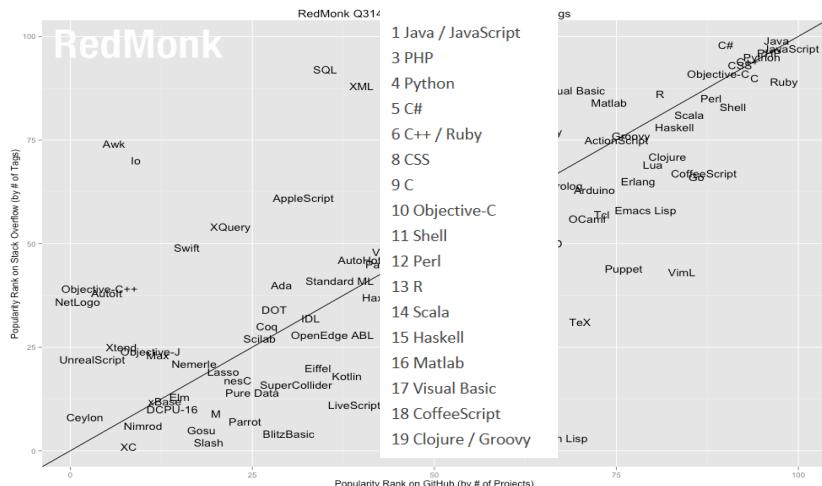
perl



# Language popularity

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by examining the frequency of projects on GitHub and



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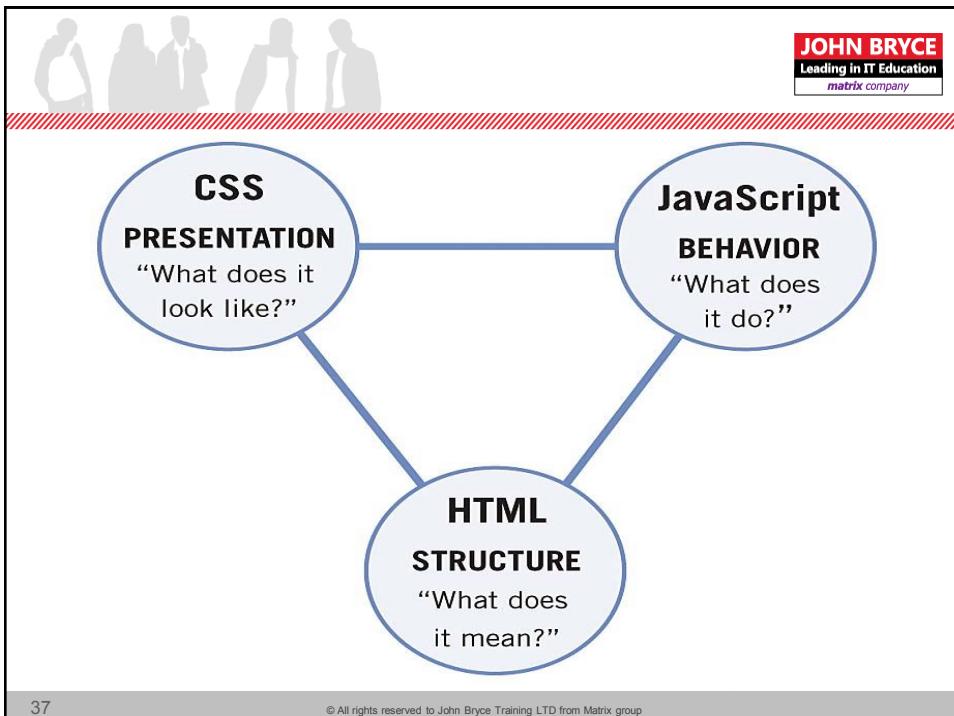
# Client Side

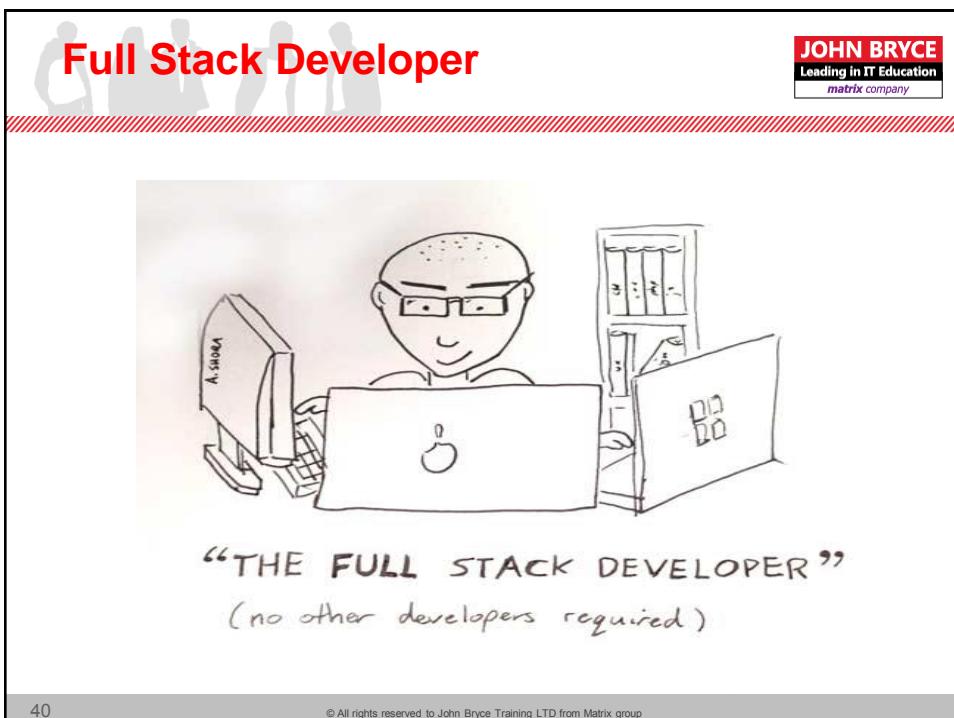
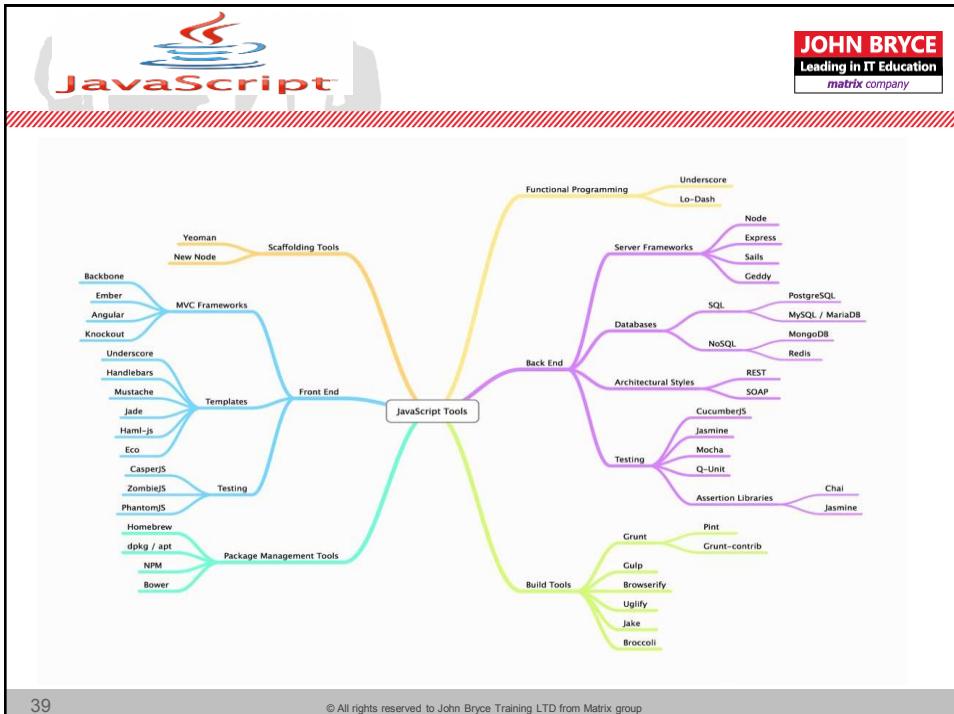
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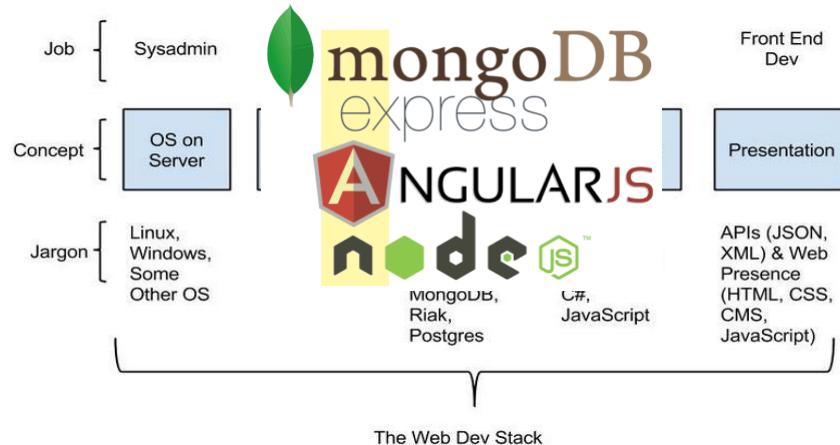
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# Full Stack Developer

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# Java Script Testing Framework

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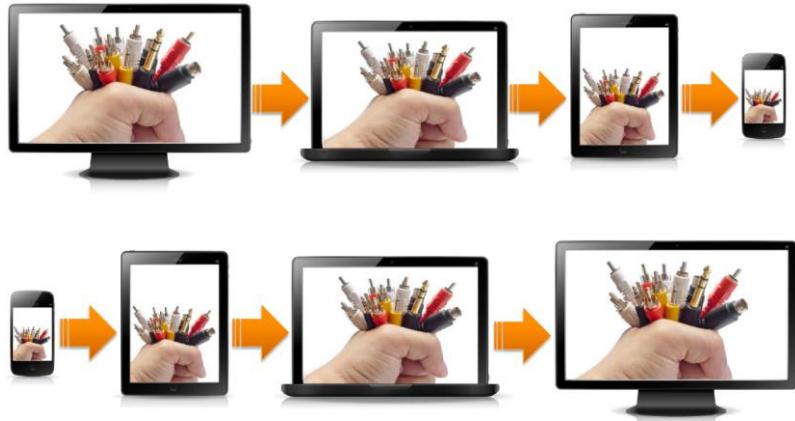


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## More Responsive Applications

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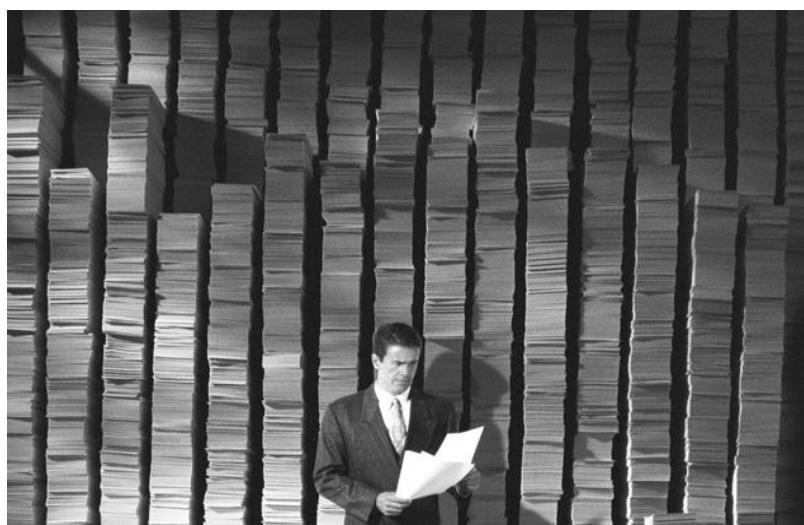


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## DATA DATA DATA !!!!

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# What we are doing with our Data ?

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Archive to Tape and  
Never See It Again



Extract Value From  
All Your Data



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# Cloud

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## Summary of Major Vendor Emphasis

	Build Private Services	Deliver Services	Services Delivered*			Private Offerings	
	IaaS	PaaS	SaaS	Enabling Tech.	Packaged Cloud		
Amazon	○	○	○	—	—	None	—
salesforce.com	○	○	○	—	—	None	—
Google	○	○	○	—	—	None	—
Microsoft	○	○	○	—	—	None	—
IBM	○	○	○	—	—	None	—
VMware	○	○	○	—	—	None	—
Oracle	○	○	○	—	—	None	—
SAP	○	○	○	—	—	None	—
HP	○	○	○	—	—	None	—

Note: This is not an evaluation of capabilities, but rather of emphasis.

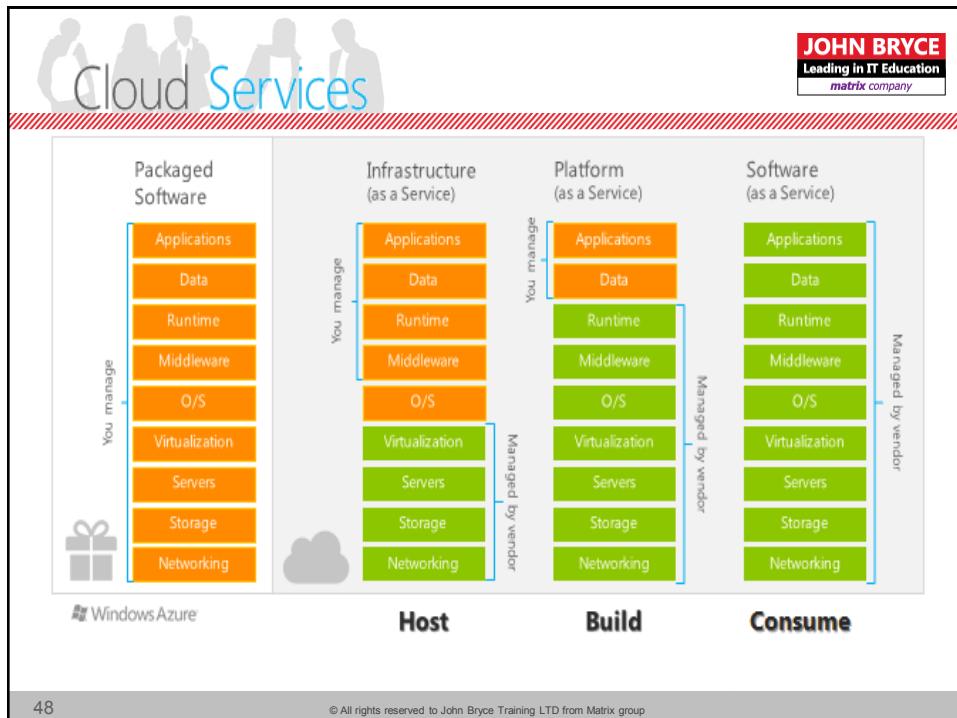


\* The provider may offer public, community or virtual private services

**Gartner**

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## RWD – Responsive web design

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## The new testing approach

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- Testing is part of the development process!!!
- Testers are part of the development teams!!!
- Testing automation is a MUST not “I’ll take it when I need it...”
- OS every where management tools, Testing automation, Load testing
- Part of the CI process
- Short delivery time = Short testing time
- New technologies



Agile/CI/CD/BDD/ALM



Mobile celebration



Testing Automation



Load Testing



## Why ALM

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- Moving forward with the CI & Agile world
- The Perfect platform solution for the IT life cycle
- Most of the common testing management tools related to the ALM platform



## ALM tools

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## The ALM tools

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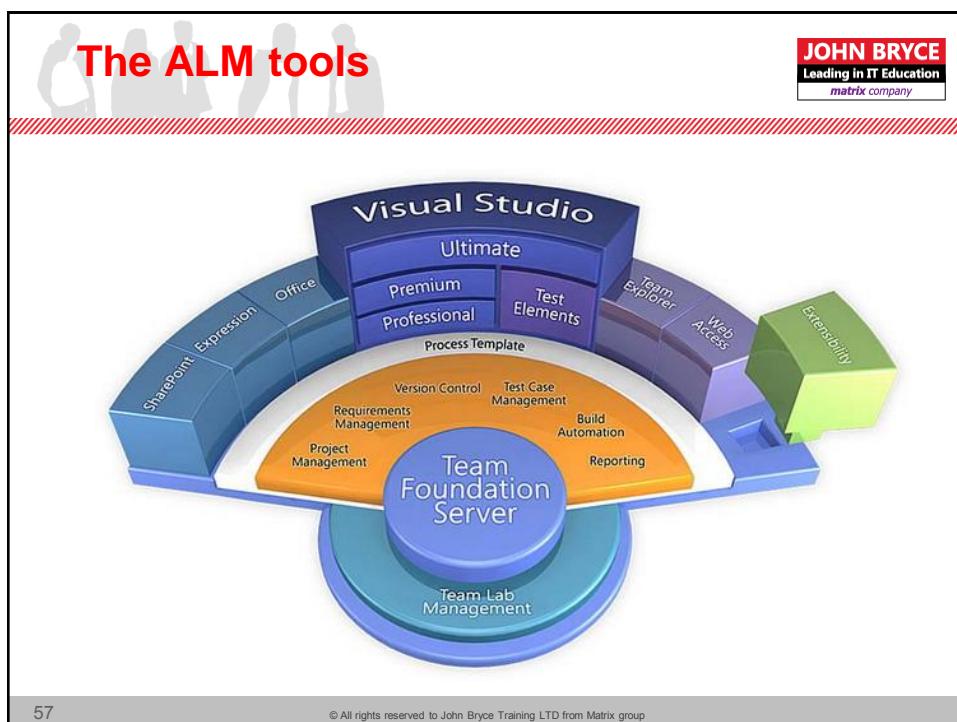
The screenshot shows a software interface titled "HPE ALM Octane". The left sidebar is titled "Backlog" and lists categories like "Messaging Basics", "Contact Management", "User Settings", "Search", "Chat Basics", and "General". The main area is titled "Backlog" and has tabs for "Overview", "Themes", "Features", "Stories" (which is selected), and "Tests". Below these tabs is a search bar and a filter button. The main content area displays three items from the backlog:

- Item 6001: Failed to send message. Detected by: Johann Leighten. Priority: 1, Severity: 1, Status: Opened.
- Item 6016: App failed to start after Pho... Detected by: Johann Leighten. Priority: 1, Severity: 1, Status: Rejected.
- Item 6019: User ca... Owner: Johann Leighten. Last Runs (5): [red bar]

At the bottom of the interface, there are links for "Documentation", "Help", and "Feedback".

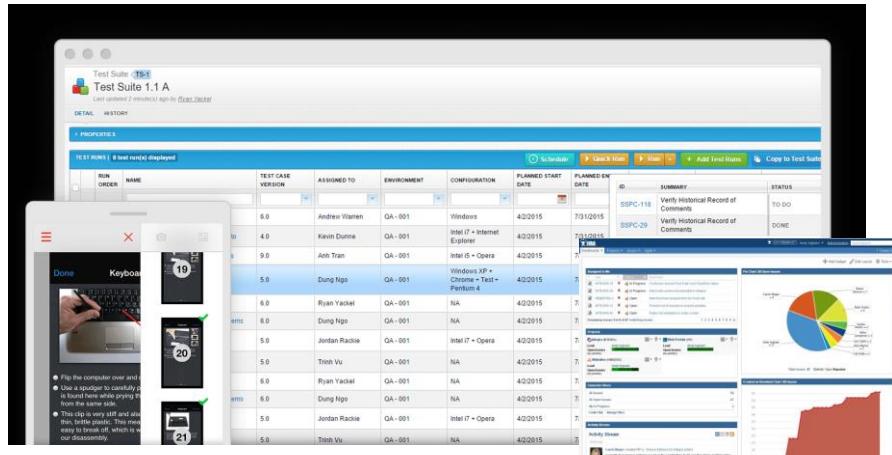
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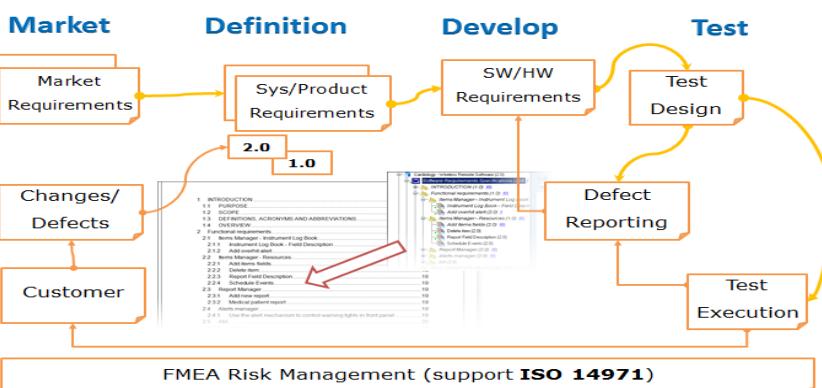


# QASYMPHONY

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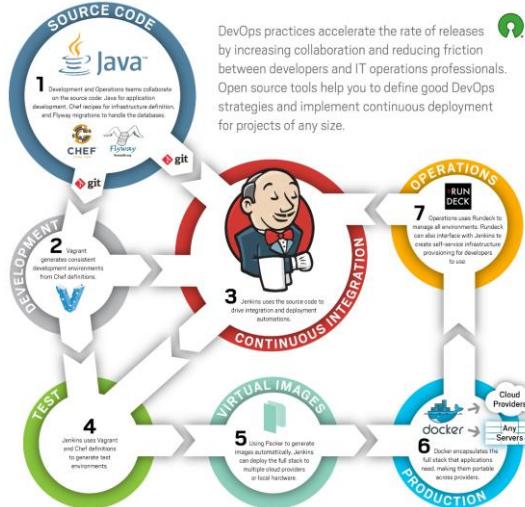


## QPACK - Orcanos



## Testing in CI process

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## Testing automation - OS

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Selenium Web Driver

Selenium-WebDriver makes direct calls to the browser using each browser's native support for automation.



BadBoy automated tool - Freeware tool which helps Web Application automation testing with Record & Replay capabilities.



AutoIt tool - **AutoIt** v3 is a freeware BASIC-like scripting language designed for automating the Windows GUI and general scripting. It uses a combination of simulated keystrokes, mouse movement and window/control manipulation in order to automate tasks



Sikuli Script automates anything you see on the screen. It uses image recognition to identify and control GUI components. It is useful when there is no easy access to a GUI's internal or source code.

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## OS Testing automation frame works

**JUnit** is a simple framework to write repeatable tests. It is an instance of the xUnit architecture for unit testing frameworks.

@Test

```
public void newArrayListsHaveNoElements() {  
    assertThat(new ArrayList().size(), is(0));  
}
```



**TestNG** - a testing framework inspired from JUnit and NUnit but introducing some new functionalities that make it more powerful and easier to use

@BeforeTest

@AfterTest

@Test



Ranorex



HP UFT/LeanFT



Test Complete





## Testing automation for API

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SoapUI is a free and open source cross-platform Functional Testing solution. With an easy-to-use graphical interface, and enterprise-class features

Testing and validating REST services in Java is harder than in dynamic languages such as Ruby and Groovy. REST Assured brings the simplicity of using these languages into the Java domain.

REST API testing framework built on node.js and Jasmine that makes testing API endpoints easy

<http://www.methodsandtools.com/archive/restapitesting.php>

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## Testing automation for mobile

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- Records on real devices (no jailbreak required) and on emulators
- Objects identified by Native / Web properties
- Same test runs on different devices (e.g. android test runs on iOS)
- Plug-Ins for: UFT (QTP), Selenium, Microsoft Visual Studio, IBM Rational, TestComplete, Java, C#, Perl, Python, Ruby.
- Mobile device connectivity: local (USB to tester PC) or remote (onsite Cloud)



- End-to-end, automated, cloud-based mobile testing platform on over 500 mobile devices
- Full coverage of all ALM testing stages: Development, QA, Monitoring & Customer Support
- Powerful scripting, UI & rich-media reports with Enterprise-grade security
- Easily integrates with your existing ALM environment (e.g. HP - QTP, IBM, Microsoft)



<https://docs.saucelabs.com/tutorials/appium/>



Test all aspects of the mobile user experience from functional to performance to context – ensuring that you create apps that delight users.

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AND  appium

Appium is an open source test automation framework for use with native, [hybrid](#) and mobile web apps.  
It drives iOS and Android apps using the WebDriver protocol.



## **Behavior-driven development**

- Establishing the goals of different stakeholders required for a vision to be implemented
- Drawing out features which will achieve those goals using feature injection
- Involving stakeholders in the implementation process through outside-in software development
- Using examples to describe the behavior of the application, or of units of code
- Automating those examples to provide quick feedback and regression testing
- Using ‘should’ when describing the behavior of software to help clarify responsibility and allow the software’s functionality to be questioned
- Using ‘ensure’ when describing responsibilities of software to differentiate outcomes in the scope of the code in question from side-effects of other elements of code.
- Using mocks to stand-in for collaborating modules of code which have not yet been written

# The Gherkin language

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**Scenario:** Refunded items should be returned to stock  
Given a customer previously bought a black sweater from me  
and I currently have three black sweaters left in stock.  
When he returns the sweater for a refund  
then I should have four black sweaters in stock.,

**Scenario:** Replaced items should be returned to stock  
Given that a customer buys a blue garment  
and I have two blue garments in stock  
and three black garments in stock.  
When he returns the garment for a replacement in black,  
then I should have three blue garments in stock  
and two black garments in stock.

# Load testing – new approach

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- New protocols
- Cloud based testing
- Load testing with the Client side
- Distribution
- Open source tools
- Mobile load testing
- Monitor tools





## Load testing OS tools

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- Apache JMeter is a 100% pure Java desktop application designed to load test functional behavior and measure performance. It was originally designed for testing Web Applications but has since expanded to other test functions.



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## Cloud based Load testing

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Cloud based Load Testing tool



cloud based performance and load testing platform, compatible to jMeter, SAAS service



Jmeter addin to enhance the reporting capabilities

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## Cloud based Client Load testing - demo

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## Mobile testing

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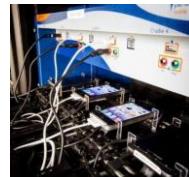


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## THE LABS FOR MOBILE

- Internal LAB
- External LAB – outsource
- Crowd sourced Testing



## That is all...? A small refresh 😊

- We spoke about:
  - New Technologies
  - New development approach
  - Testing in the new world





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Presented by: Lior Katz

[liorkat@tact.co.il](mailto:liorkat@tact.co.il)

+972542278430

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