




Extreme Testing with Jenkins and Selenium



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Saucelabs.com



The image displays two screenshots of the Indeed.com job search interface. The top screenshot shows a search for "Selenium" with 3,442 results. The bottom screenshot shows a search for "QTP" with 3,398 results. Both screenshots highlight the search term and the total number of results with red circles.

Top Screenshot: Selenium Search

- Search term: **Selenium**
- Results: **Jobs 1 to 10 of 3,442**
- Salary Estimate:
 - \$50,000+ (3067)
 - \$70,000+ (2113)
 - \$90,000+ (1073)
 - \$110,000+ (413)
 - \$130,000+ (175)
- Title: **Senior UI Engineer** (Sponsored Jobs)
- Company: **Elti Solutions - San Jose, CA**
- Description: compatibility issues a plus Experience working in fast-paced startup environments Familiarity with **Selenium** or a similar browser-side testing framework
- Posted: **Elti Solutions - 27 days ago**

Bottom Screenshot: QTP Search

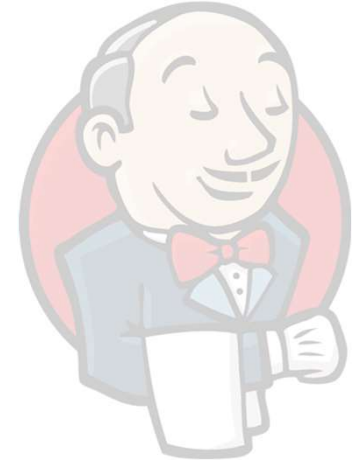
- Search term: **QTP**
- Results: **Jobs 1 to 10 of 3,398**
- Salary Estimate:
 - \$50,000+ (2948)
 - \$70,000+ (1846)
 - \$90,000+ (821)
 - \$110,000+ (303)
- Title: **QA Tester with QTP and SQL** (Sponsored Jobs)

Selenium's #1, baby!



2 Extreme Stories

- In the cloud
- In the garage



Mantra:



- Parallelizability (p15y) leads to fast software builds.
- Fast builds lead to happy developers.
- Happy developers lead to happy customers.



- Q: Want happy customers?
- A: Use parallel-ready testing tools!



Story #1 - Massive testing (in the cloud)

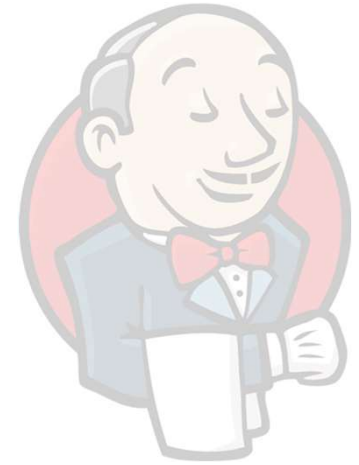
A large domestic airline





- Build and test **entire** site in 20 minutes.
- (10 min build, 10 min Selenium testing)
- Massive parallelism

Parallelism x2!

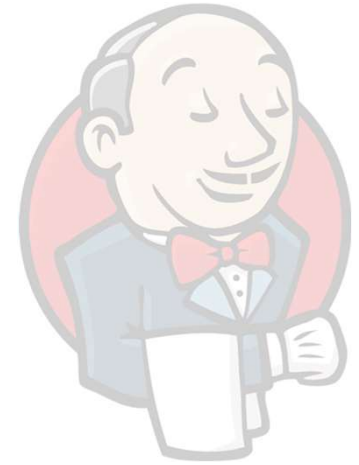




Jenkins

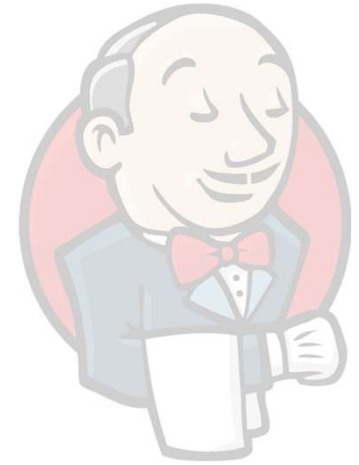
- 1 Jenkins master
- 10 physical slaves
- 10 Virtual IPs per slave
- 100 potential total nodes
- Each Jenkins executor on client side *could* generate ~30 threads at Sauce for cloud testing
- $100 \times 30 \rightarrow 3000$ potential parallel threads of test execution. *

* Current use about 30-300 cloud browsers running tests at any give time throughout the entire day.



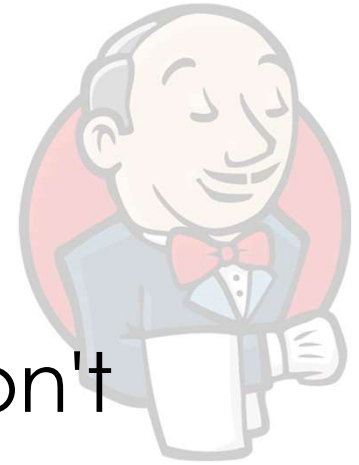
JBehave

- Every story is written with JBehave
- JBehave can parallelize each story.
- JBehave -> regex -> groovy page objects-> java -> Selenium2
- Each story compiles to an end-to-end full stack + Selenium test run.



All that... multiplied

- Smoke suite
- Regression suite
- Team-specific feature testing
- *plus*
- Component tests
- JavaScript unit tests (jasmine)

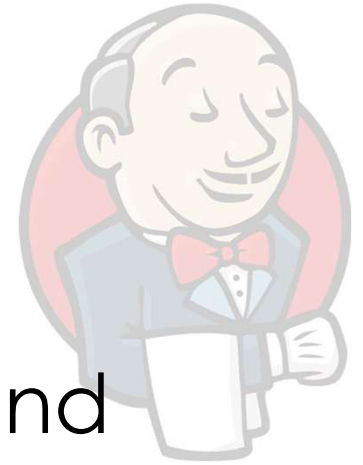


Process

- Trunk-based development (aka "Don't break the build!")
- Branch per release
- At any given moment, 2 lines (release branch + trunk) are in use.
- Fixes go to trunk first, then branch
- Feature toggles (aka "Feature flags")
- Every jBehave test suite stands up its own app stack for testing. (Amdahl's Law)

Next...

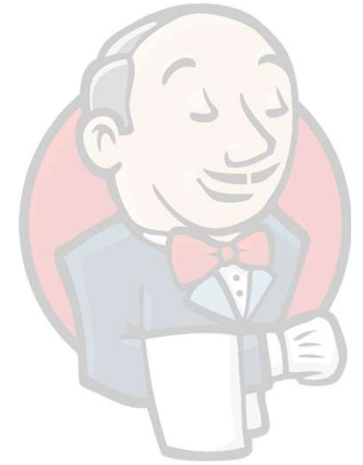
- Improve reliability, then go for scale and speed



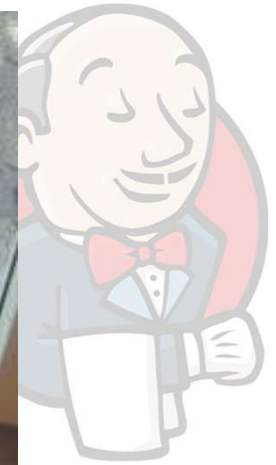
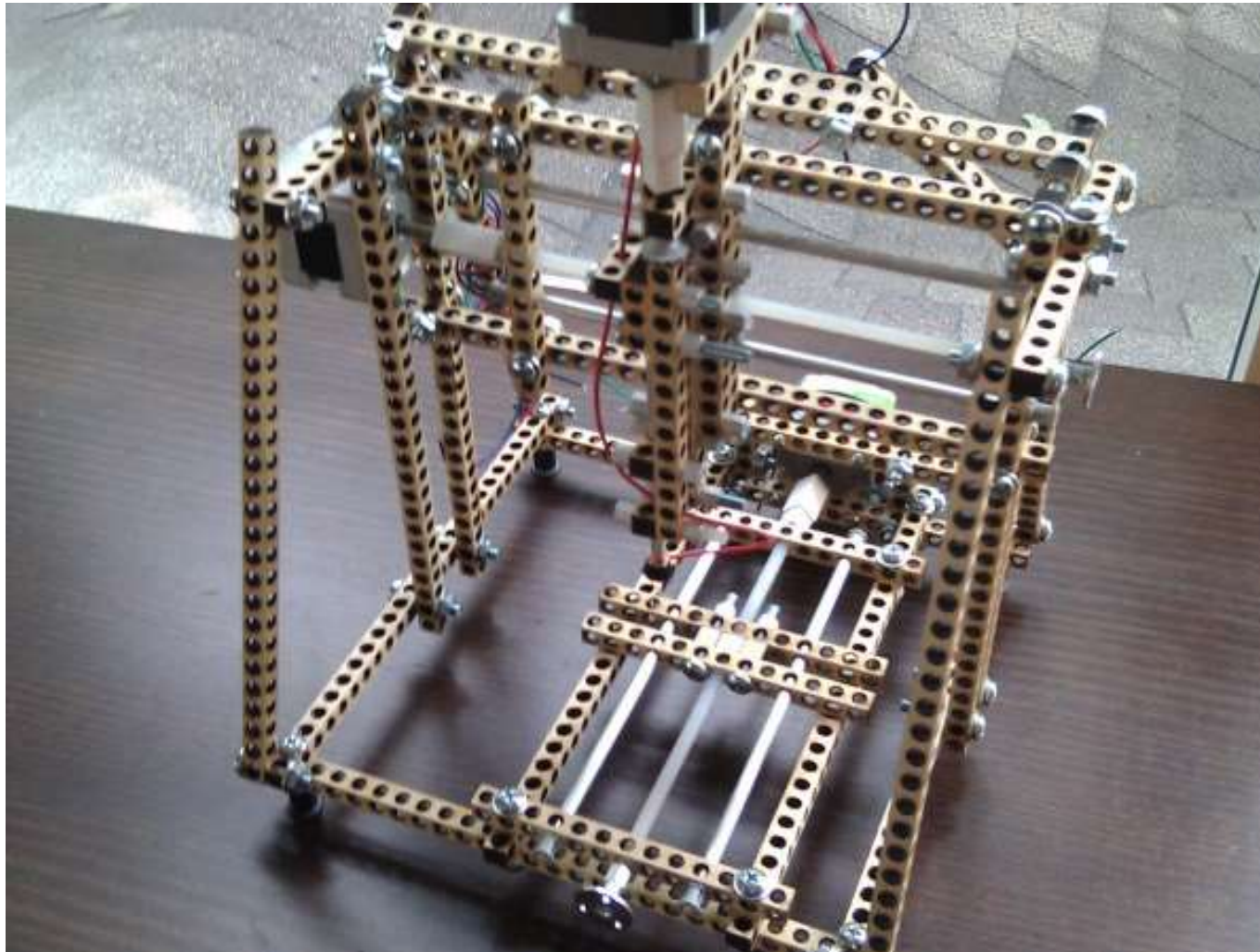


More info about JBehave

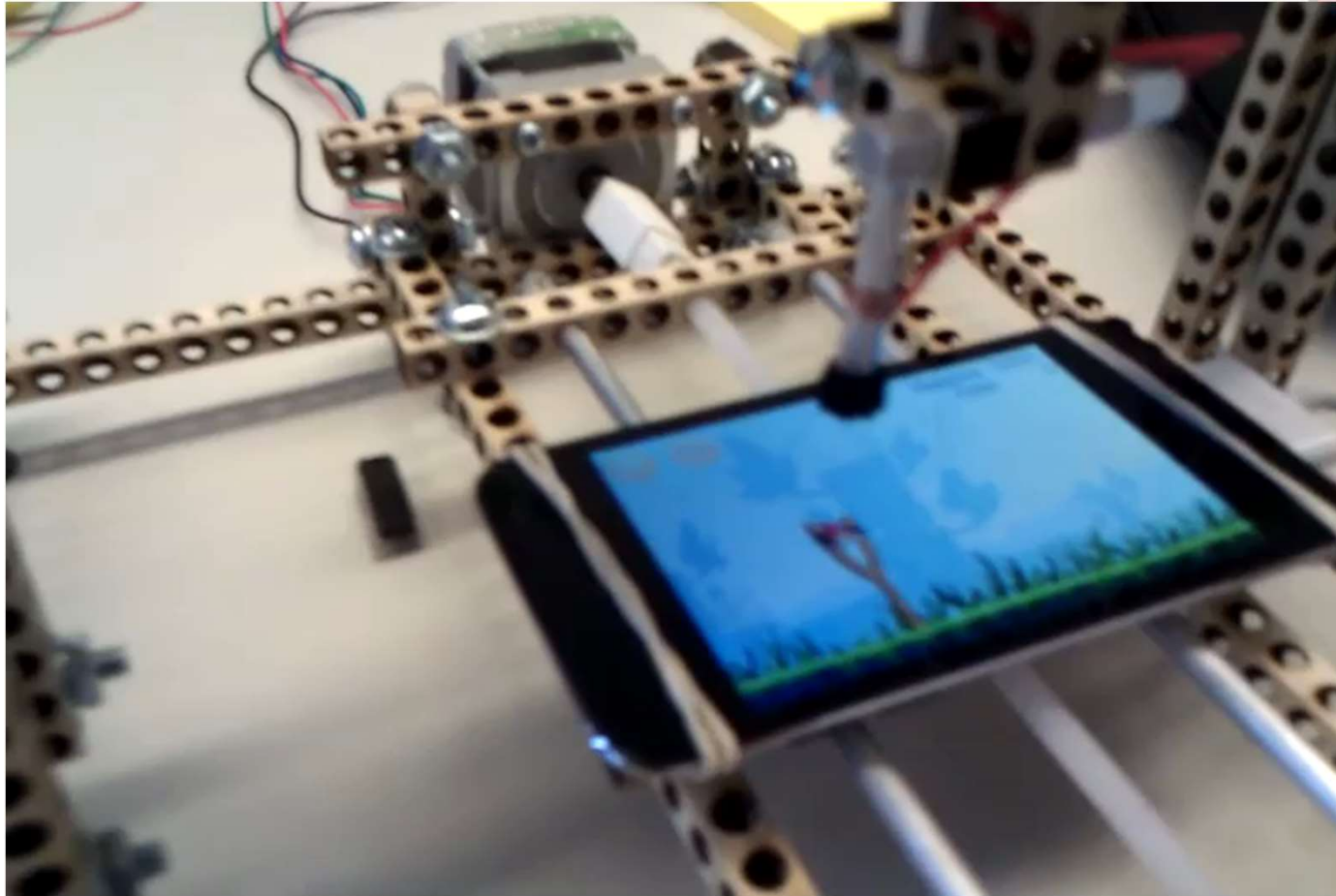
- <https://github.com/paul-hammant/jbehave-webdriver-tutorial>



Story #2 – Mobile Testing (with Robots!)



Bitbeambot
(<http://bitbeam.org>)



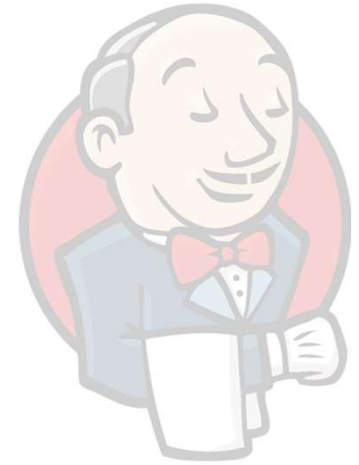
**Video Demo
(click to start)**



BitbeamBot – What?

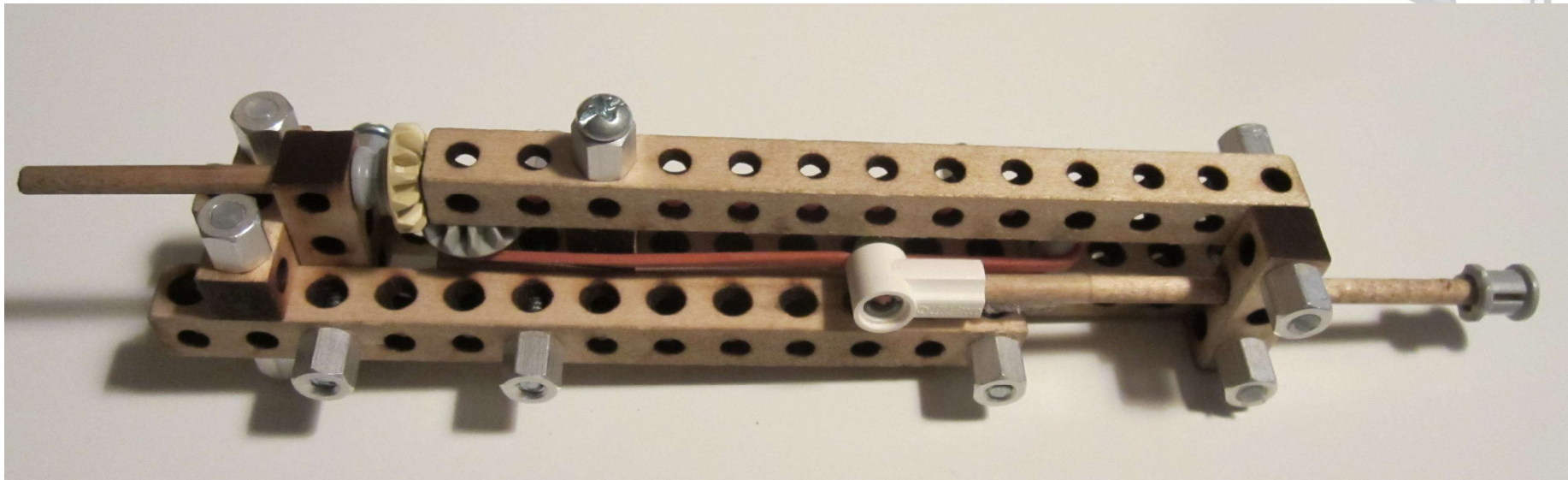
- A computer-controlled (CNC) robot for testing applications on mobile devices
- Open Source components:
 - Electronics: Arduino
 - Mechanics: Bitbeam
 - Lego Technic compatible building toy
 - Made from Basswood
 - Designed with 3D tool OpenSCAD
 - Lasercut at TechShop San Francisco
 - Software: Python, Selenium

BitbeamBot - Why?



- Selenium is a software-based robot.
- Selenium's mission is to mimic and automate how users interact with an application.
- For mobile, this means handling real devices.
- BitbeamBot is an experiment to take Selenium out of the screen and into the real world.

The “Clicker” (1st prototype)



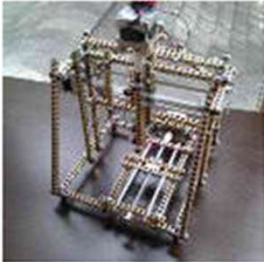


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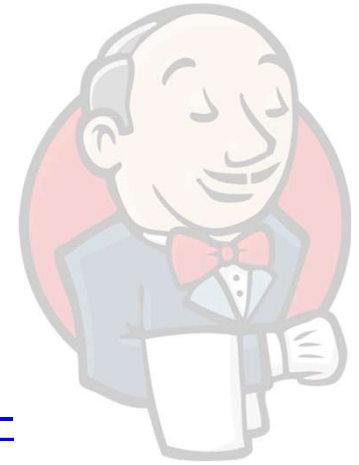
angryboards.net

AngryBoards.net

The #1 Leaderboard... for Robots That Play Angry Birds

Leaders:

	Bitbeambot:	3400 points
	T-100:	946 points
	FAKEGRIMLOCK:	183 points










Links:

- JBehave: <https://github.com/paul-hammant/jbehave-webdriver-tutorial>
- Selenium: <http://seleniumhq.org>
- Bitbeam: <http://bitbeam.org>
<https://github.com/hugs/bitbeam>
- Sauce Labs: <http://saucelabs.com>
- Me (Jason Huggins): <http://twitter.com/hugs>



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