totoro

A simple & stable cross-browser testing tool

Zhouxuan Yang

2012.12 ~ Now

- 2007

浙江大学
Zhejiang University

- 2008 ~ 2012

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Taobao.com

- 2012 ~ now

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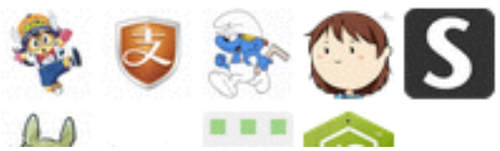
424 Followers **24** Starred **6** Following

Organizations



Contributions Repositories Public activity Edit profile

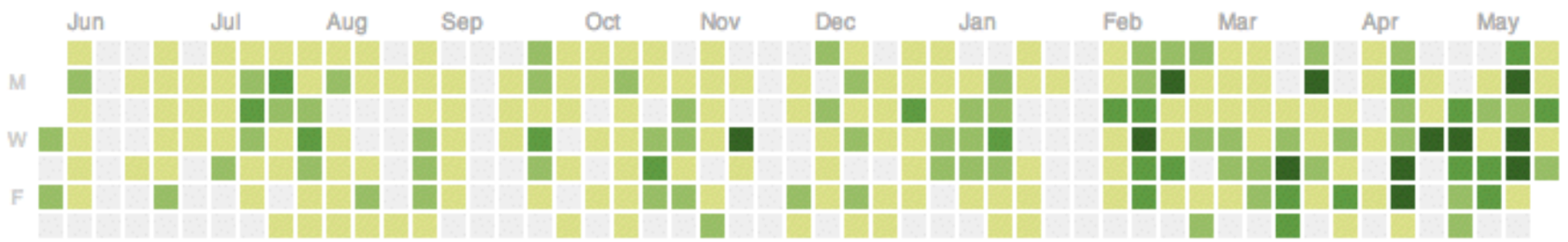
Popular repositories

- **dragon-book-exercise-answers** — Compilers Principles, Techniques, & To… — 211 ★
- **blog** — fool2fish's blog — 65 ★
- **velocity** — A node velocity template engine. Node … — 57 ★
- **selenium-doc** — selenium 中文文档 — 28 ★
- **the-c-programming-language-…** — The C programming language exercise … — 3 ★

Repositories contributed to

- **totorojs/totoro-server** — Server side of totoro. — 38 ★
- **totorojs/browsers** — A simple and stable browser driver. — 15 ★
- **totorojs/totoro** — A simple and stable cross-browser testi… — 290 ★
- **totorojs/totoro-log-analyse** — Totoro server log analyse. — 0 ★
- **totorojs/totorojs.org** — Official web site and docs of totoro. — 57 ★

Contributions



Summary of Pull Requests, issues opened, and commits. Learn more. Less More

Year of contributions	Longest streak	Current streak
1,844 total	11 days	5 days
May 29 2013 - May 29 2014	March 25 - April 04	May 25 - May 29

totorojs.org

1. What ?

Basic features

- Run in real browsers
- Support all test frameworks

Special features

- Simple
- Stable

Examples

- Simple
- Jasmine
- Test fail
- Syntax error
- Timeout

2. How ?

References

Karma

Spectacular Test Runner for JavaScript

PhantomJS

sauce LABS

testling-ci

run your browser tests on every push

LET'S CODE TDJS

SeleniumHQ Browser Automation

. . . . . .

2.1 Socket based

How it works

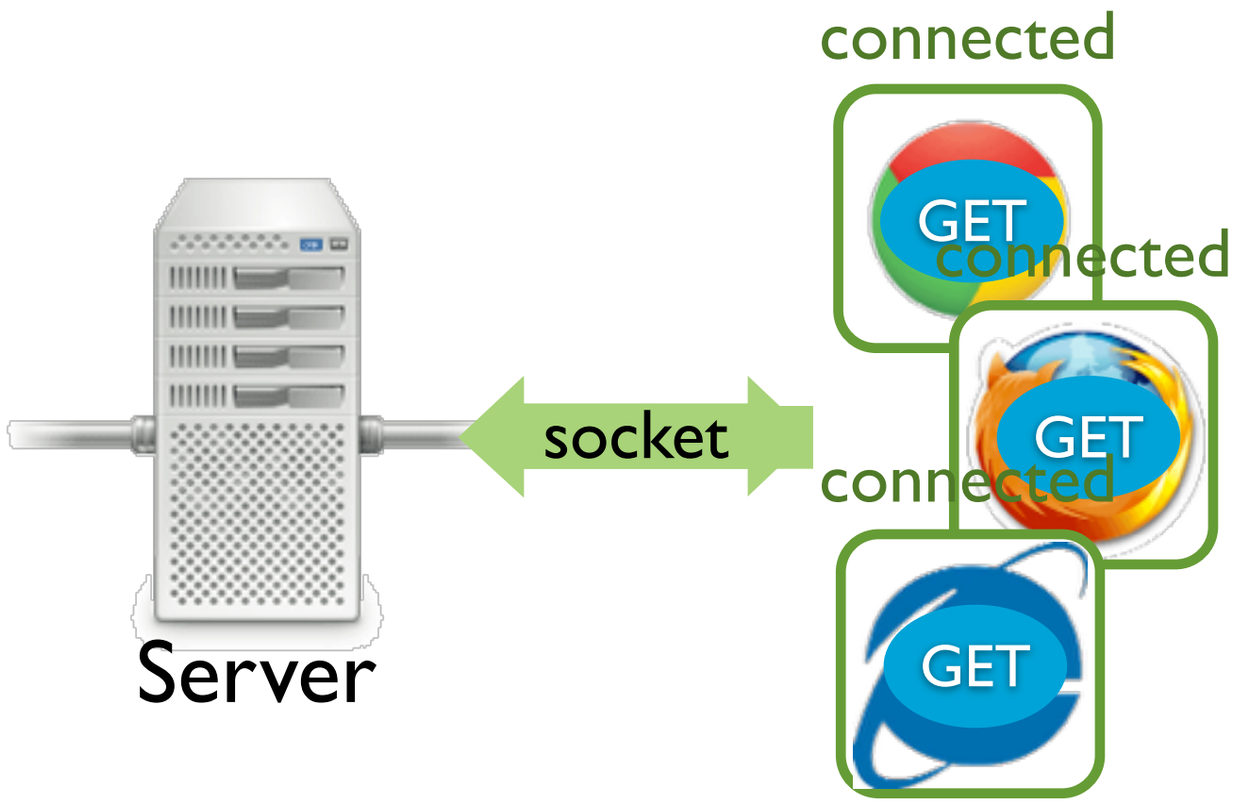
Client

Server

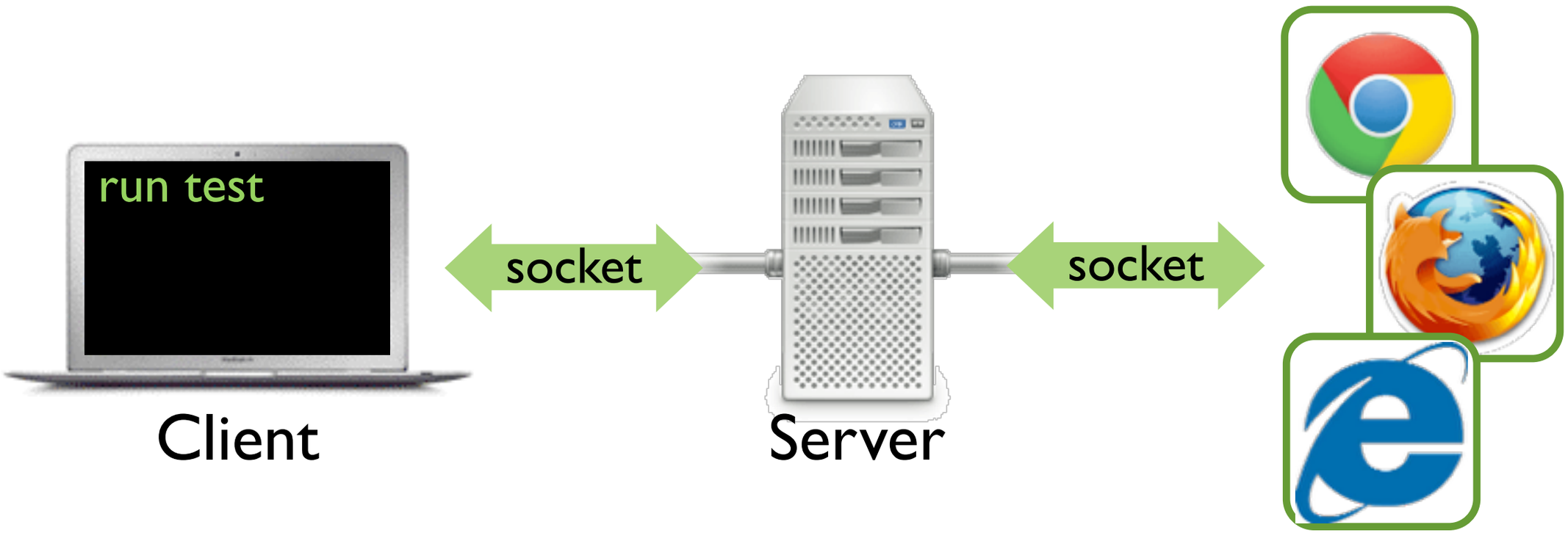
How it works

Server

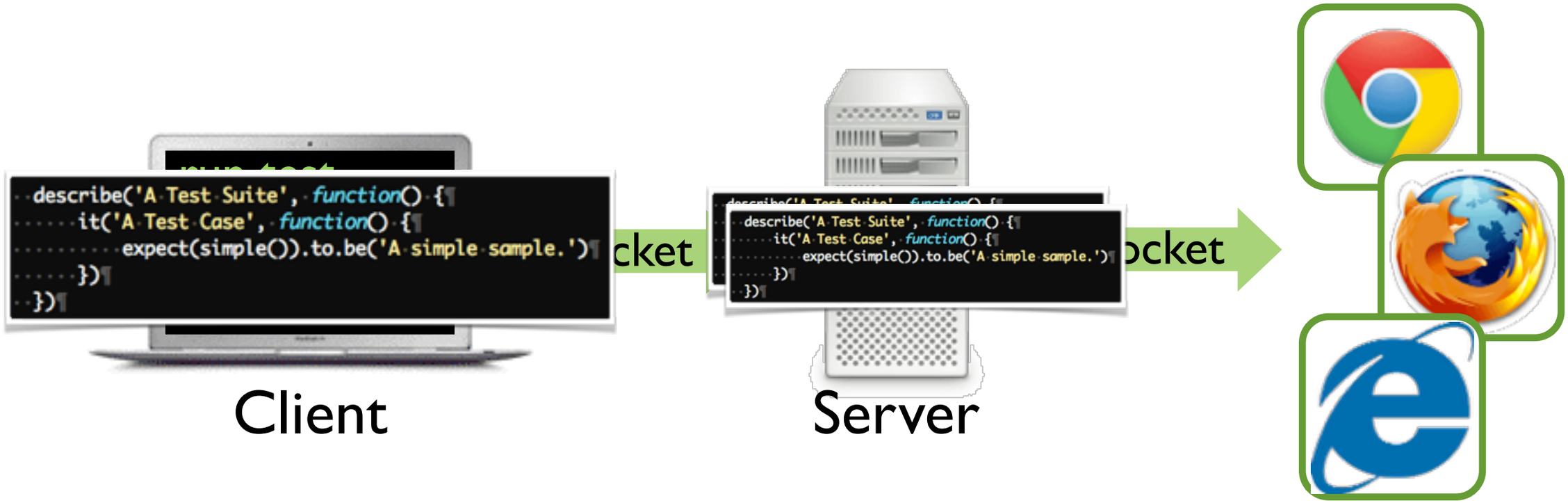
How it works



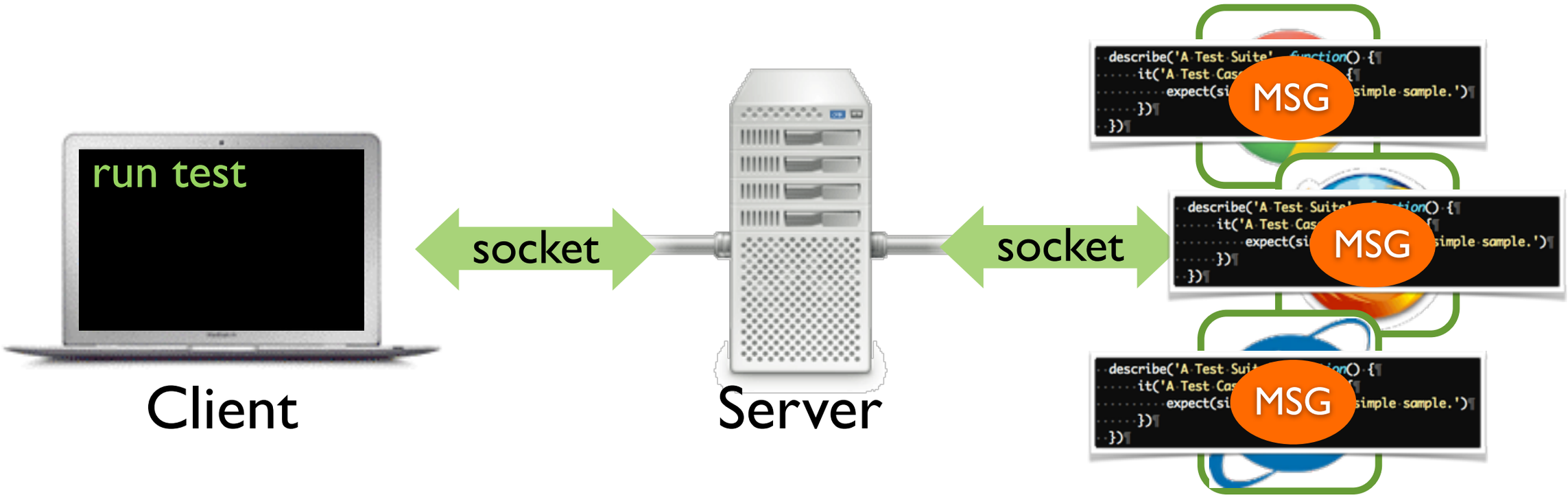
How it works



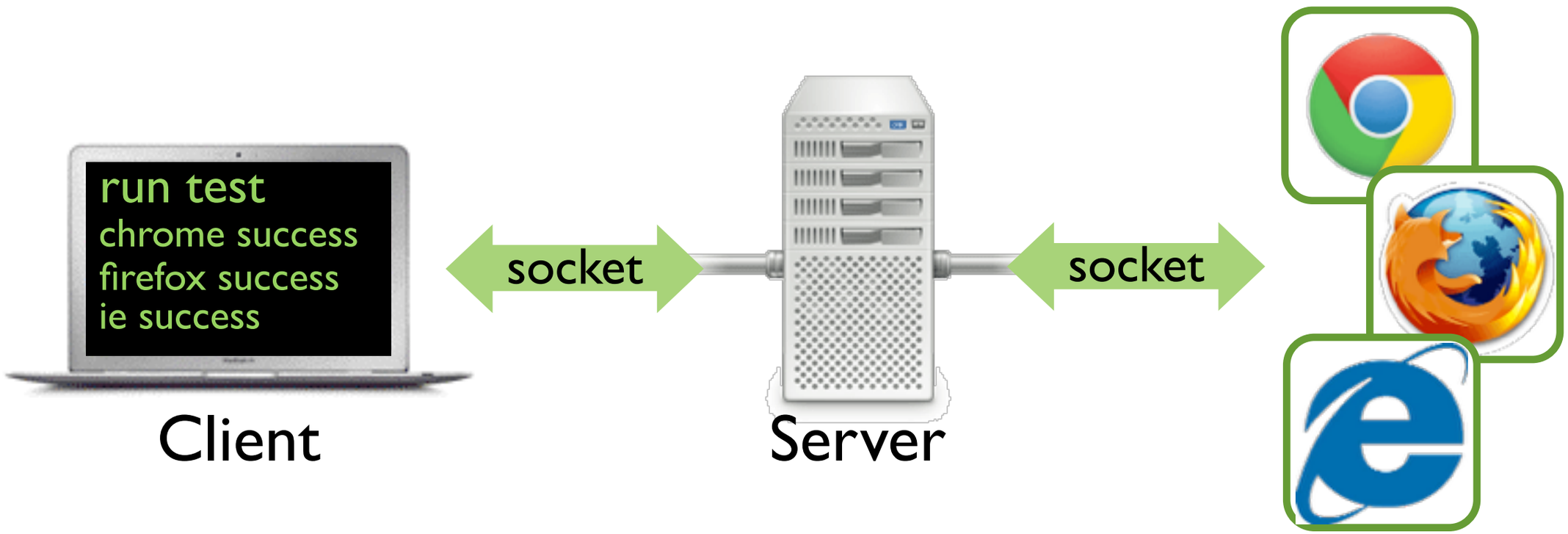
How it works


describe('A Test Suite', function() {
it('A Test Case', function() {
expect(simple()).to.be('A simple sample.')
})
})
describe('A Test Suite', function() {
it('A Test Case', function() {
expect(simple()).to.be('A simple sample.')
})
})
Client
Server

How it works



How it works


run test
chrome success
firefox success
ie success
socket
socket
Client
Server

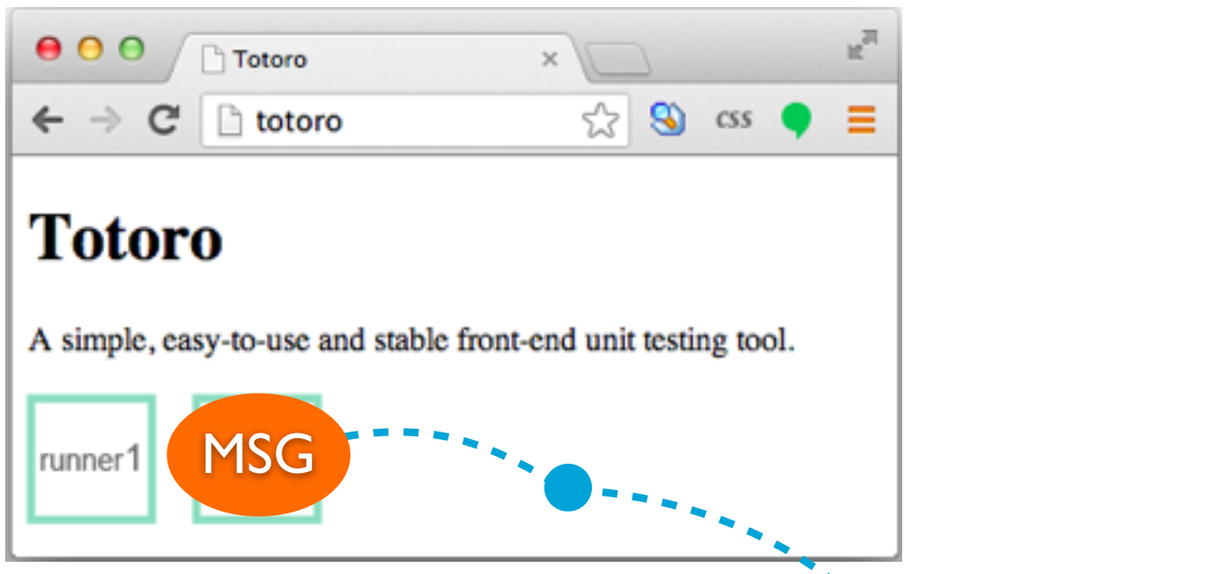
Problems

- Iframe or window
- Test allocation
- Proxy
- Not stable

2.2 Totoro

Iframe or window

Run in iframe



Iframe or window

- Testing efficiency
- Browser stability
- Correctness of testing result

Why not iframe?

```
it('width is not zero', function(){
    var el = document.createElement('div')
    document.body.appendChild(el)
    expect(el.offsetWidth).not.to.be(0)
})
```

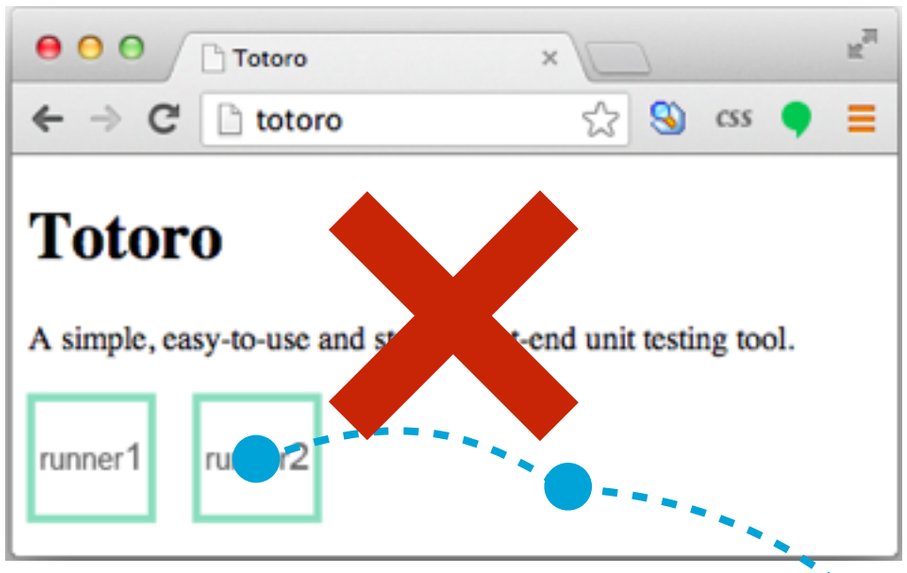
```
ie 6.0 / windows xp
Failed 1 of 1 tests in 16ms
    width is not zero: expect 0 to not equal 0

chrome 30.0.1599.69 / macosx 10.8.4
Failed 1 of 1 tests in 6ms
    width is not zero: expect o to not equal 0
```

https://github.com/fool2fish/blog/issues/3

Iframe or window

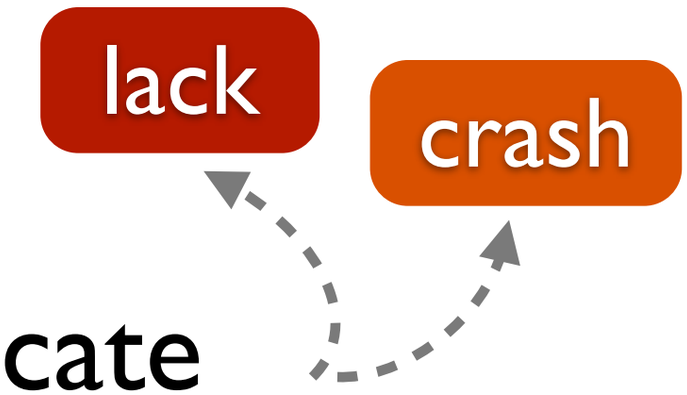
Run in iframe



Run in window

Server

Test allocation



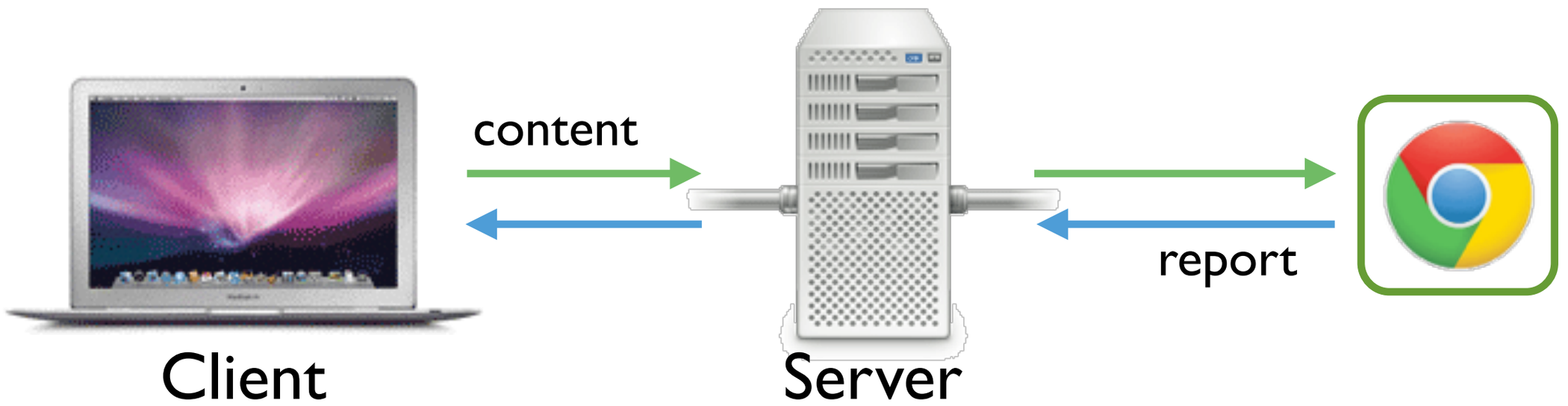
- When should allocate
- Which browser should be assigned to

When should allocate

- More orders wait
- More labors available

Proxy

- Get content from client
- Report test result



Transparent or not?

URL map rule

- localhost/path/to/runner
    1. totorojs.org/{{id}}/path/to/runner
    2. {{id}}.totorojs.org/path/to/runner
    3. totorojs.org/path/to/runner?{{id}}

2.3 More stable

2.3.1 Selenium Grid

How it works

Driver

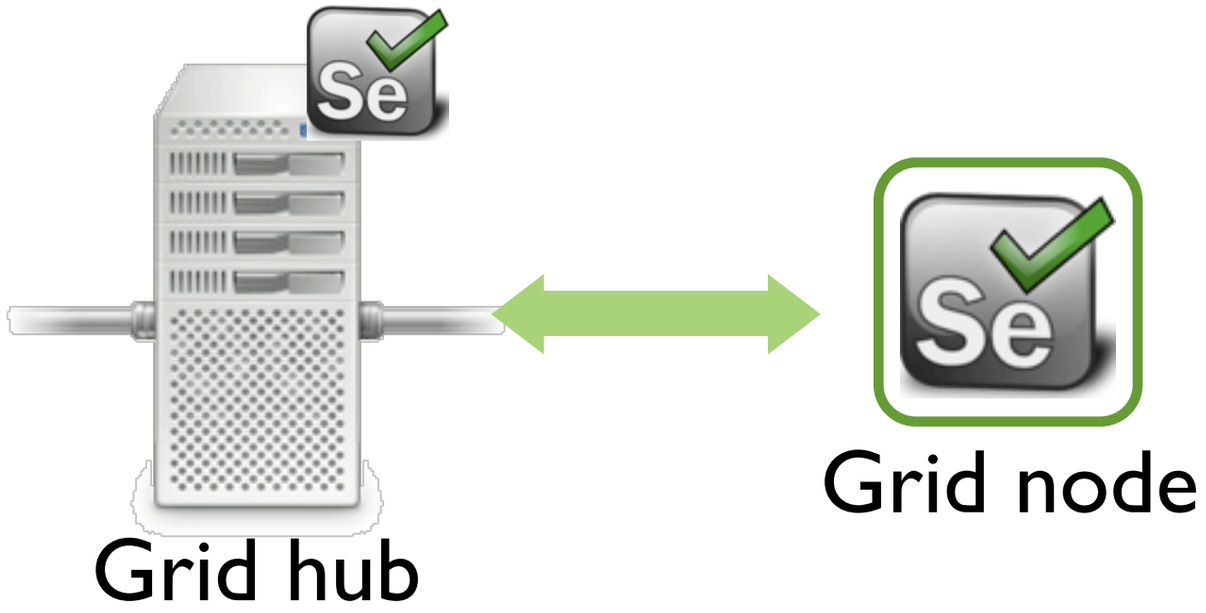
Grid hub

Grid node

How it works

Grid hub

How it works



How it works

Driver

Grid hub

Grid node

```
browser = driver.get('chrome')
browser.open('alipay.com')
```

How it works

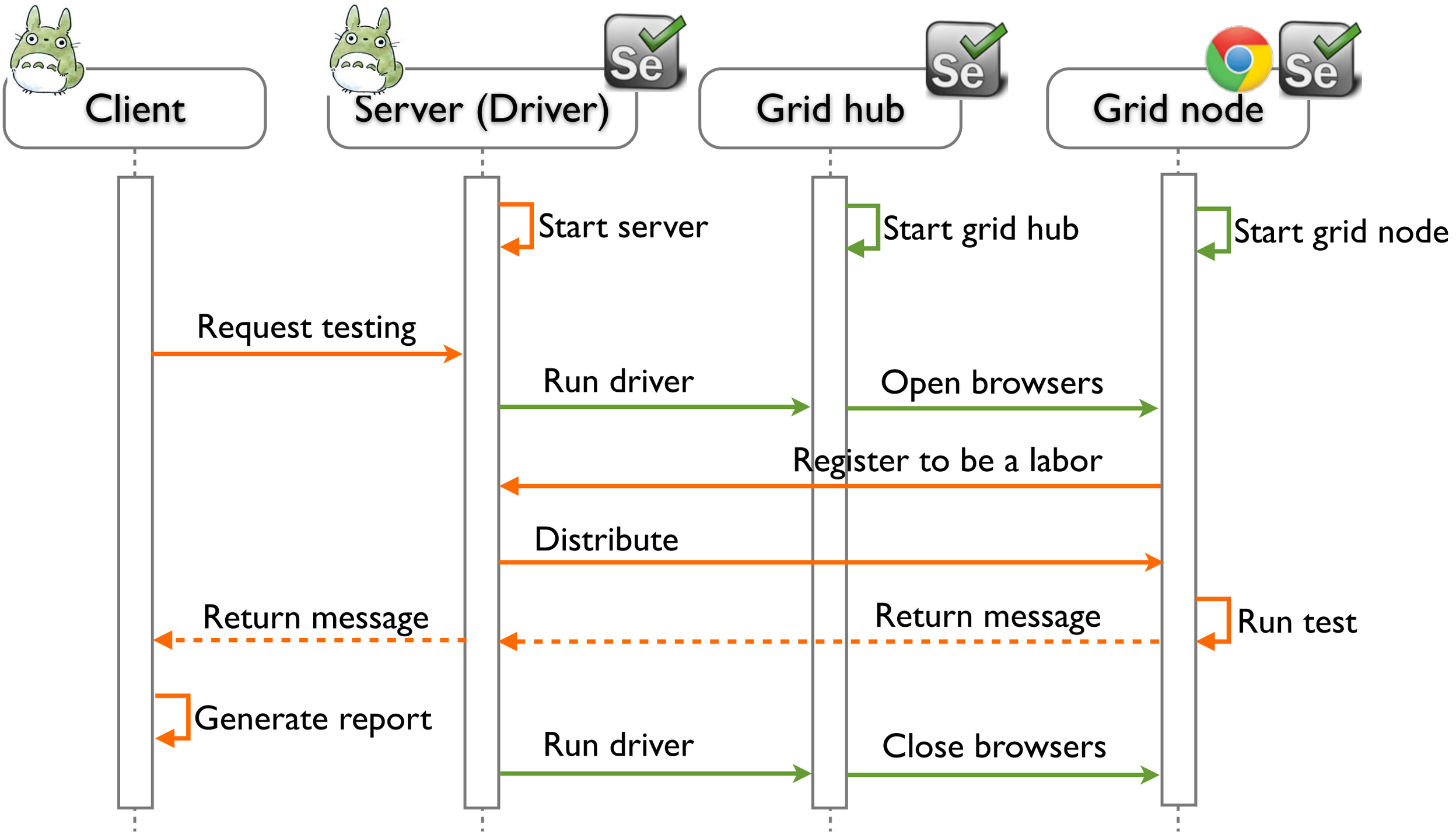
Driver

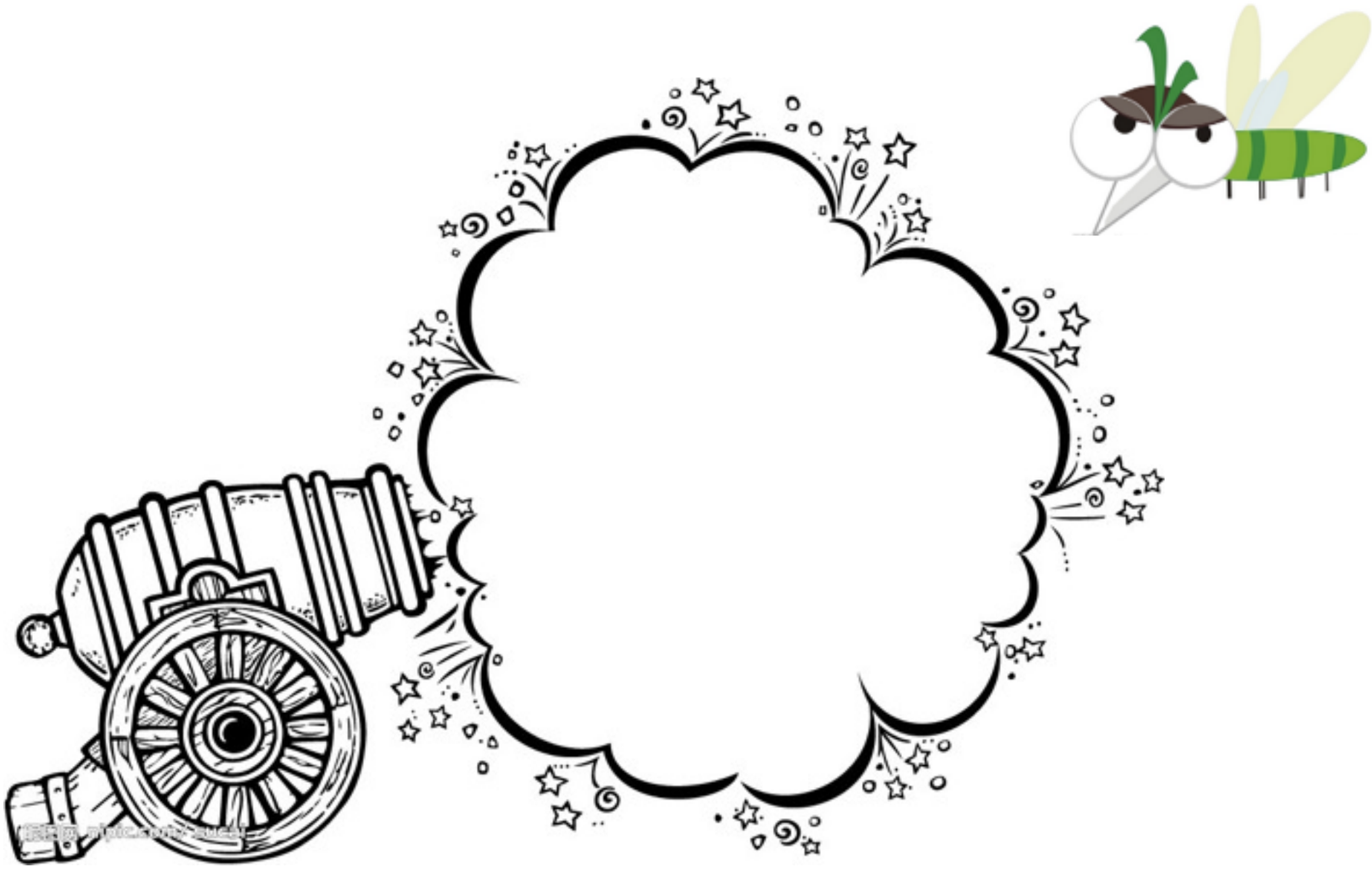
Grid hub

Grid node

```
browser = driver.get('chrome')
browser.open('alipay.com')
```

Workflow


Client
Server (Driver)
Grid hub
Grid node
Start server
Start grid hub
Start grid node
Request testing
Run driver
Open browsers
Register to be a labor
Distribute
Return message
Return message
Run test
Generate report
Run driver
Close browsers



New problems

- Too complicated to use
- New hub , strong coupling

Crashed again!

It may be not in the mood.

怒！

2.3.2 Deamon

A lightweight way

/Applications/Firefox.app/Contents/MacOS/
firefox-bin URL

https://developer.mozilla.org/en-US/docs/Mozilla/Command_Line_Options

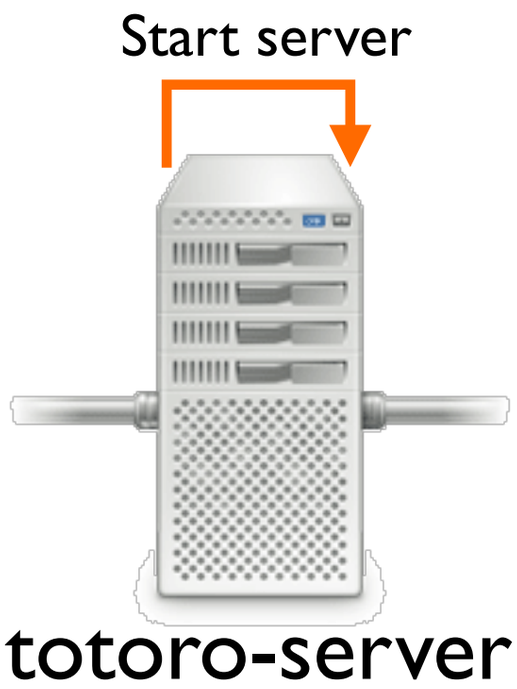
Basic features

- Open browser
- Close browser
- Visit URL

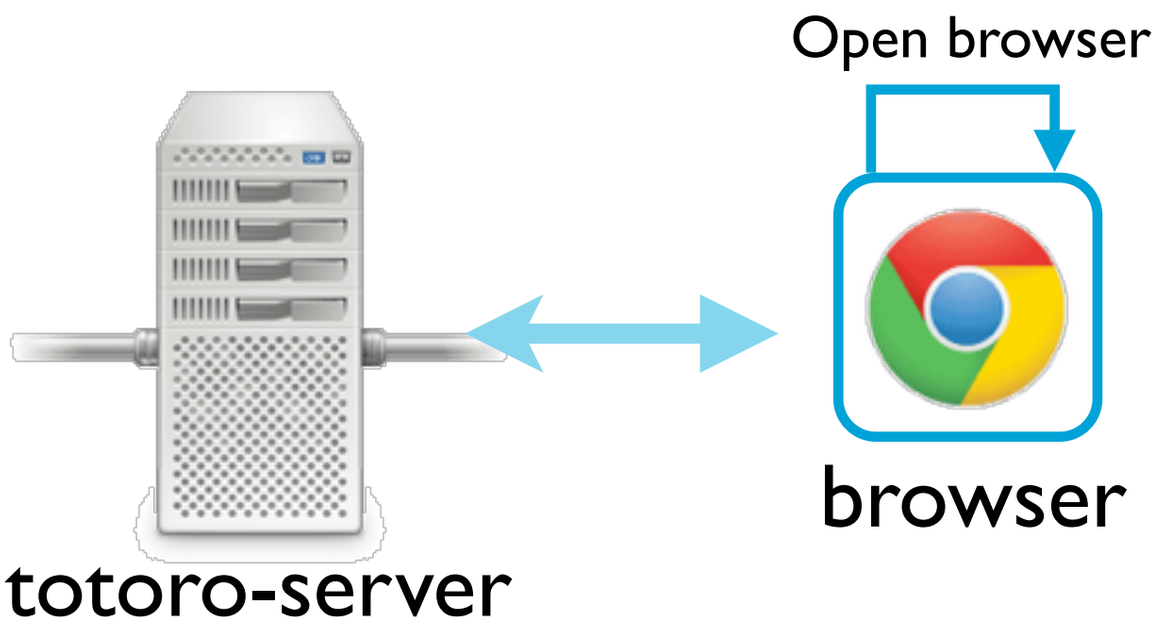
Advanced features

- Monitor status
  - Memory
  - CPU
  - Running
- Monitor connection

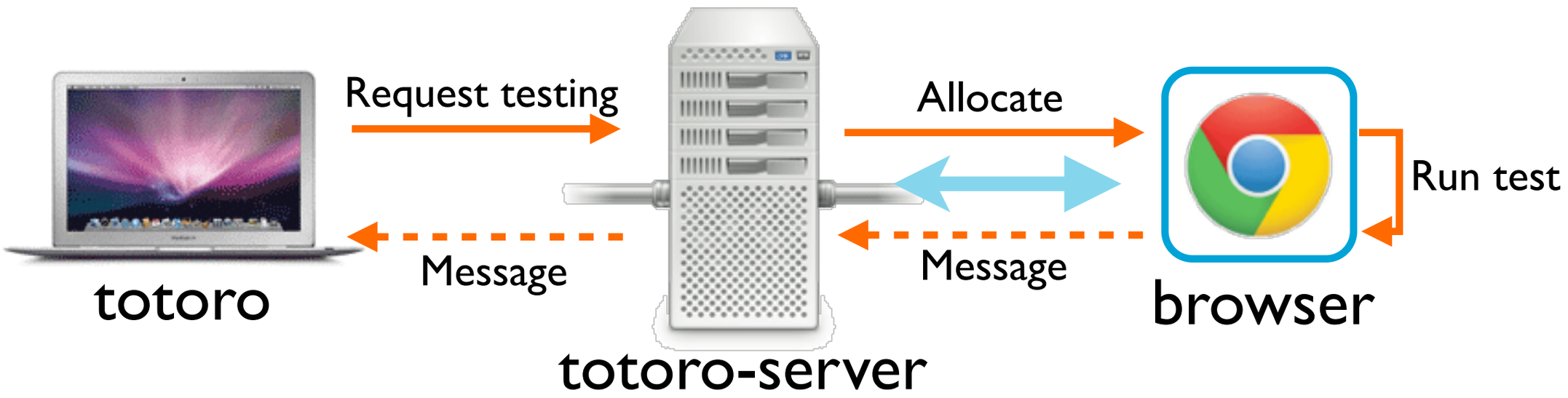
How it works



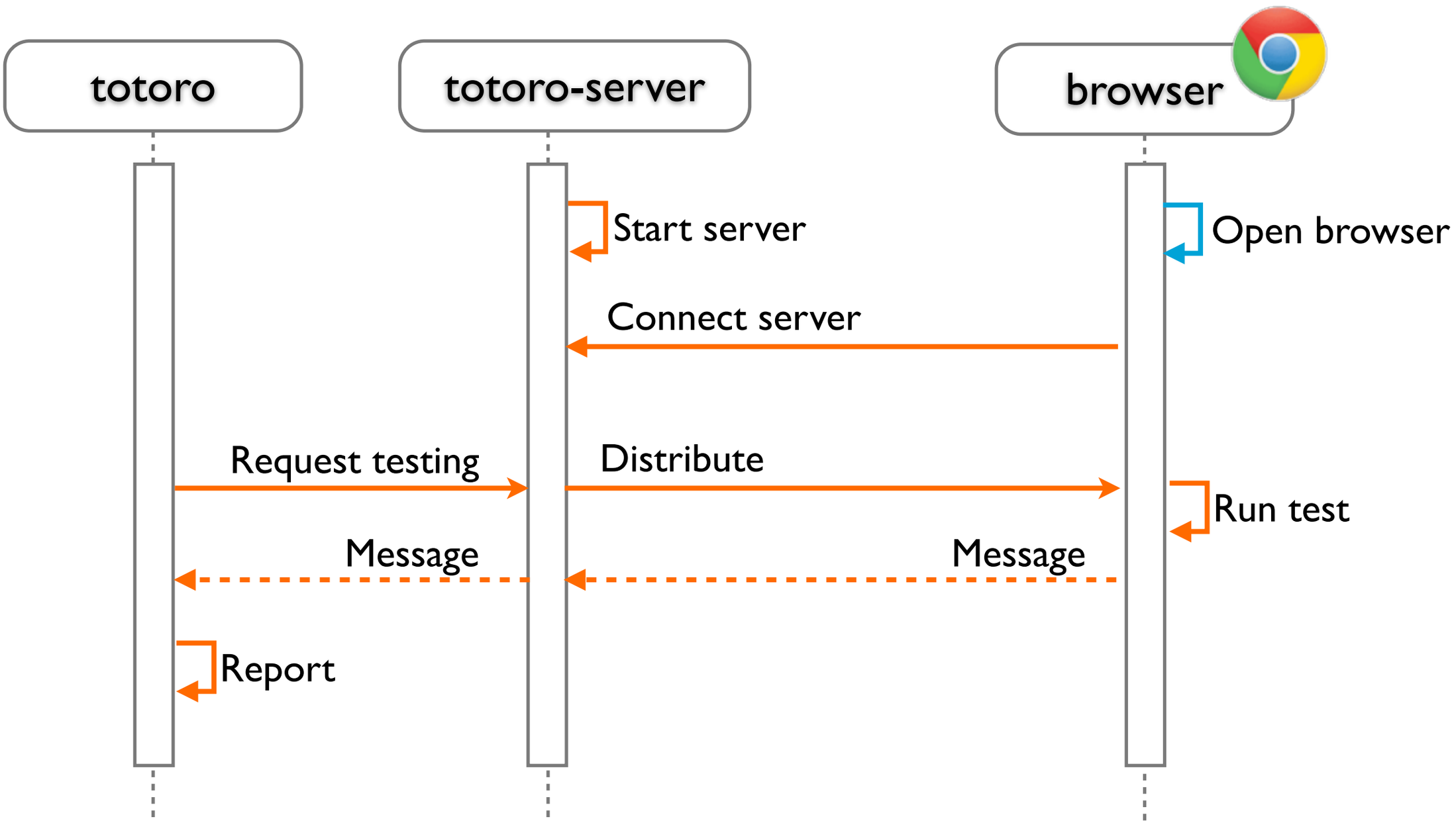
How it works



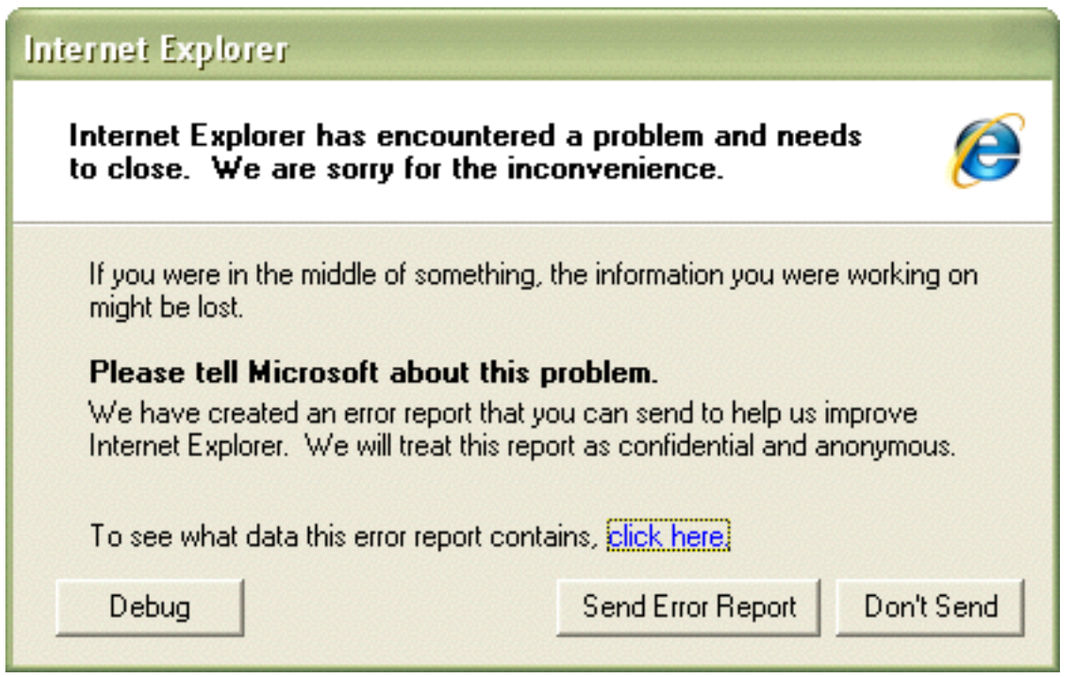
How it works


Request testing
Allocate
Run test
Message
Message
totoro
totoro-server
browser

Workflow


totoro
totoro-server
browser
Start server
Open browser
Connect server
Request testing
Distribute
Run test
Message
Message
Report

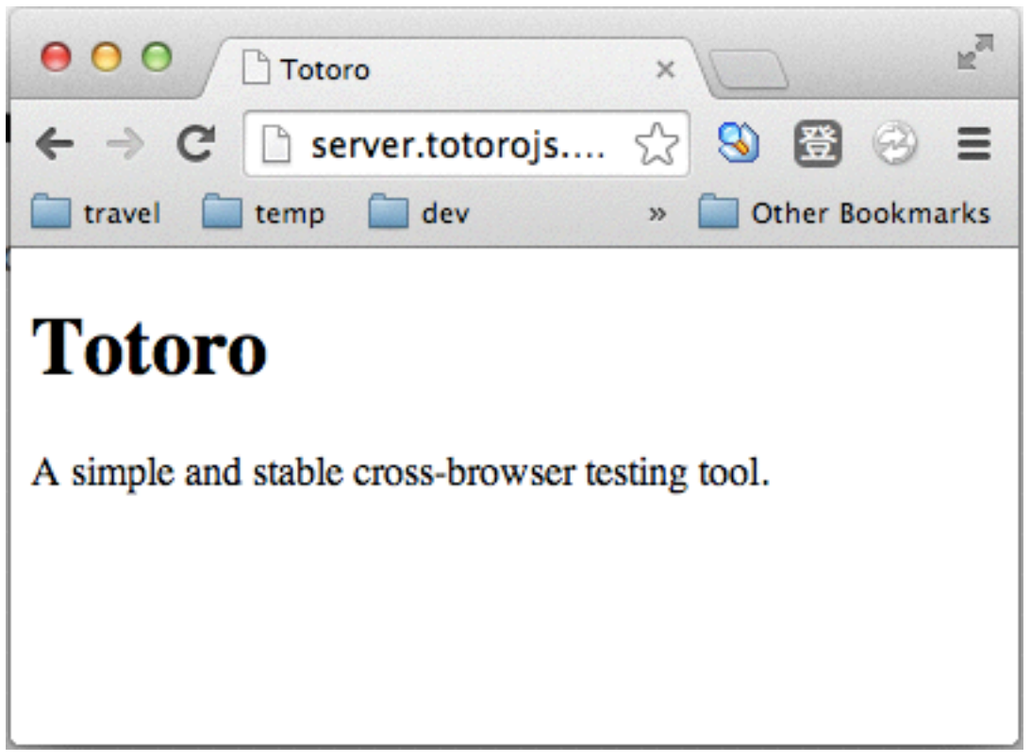
Good times don't last long



2.3.3 Driver

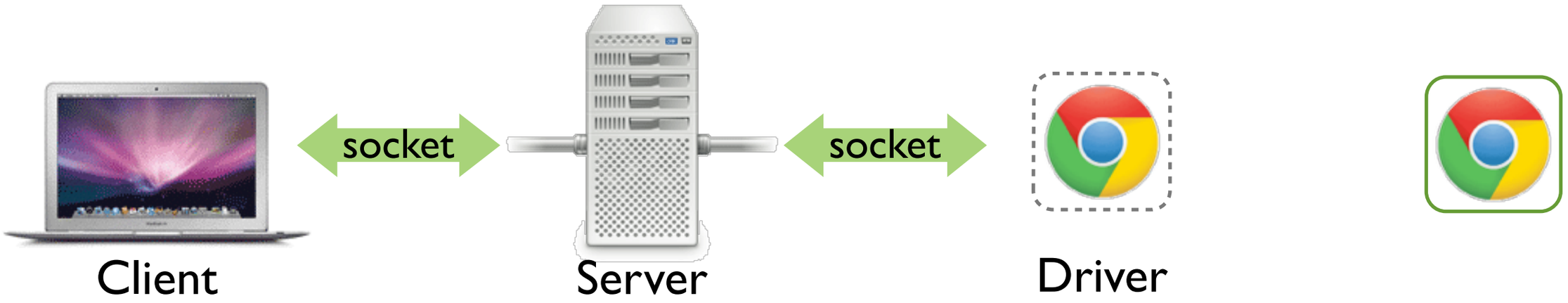
Review

- Open & close browser
- Transfer test report

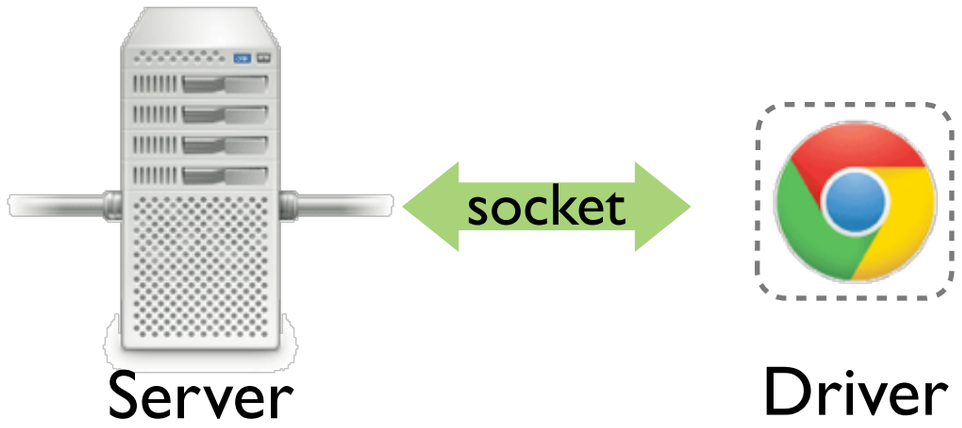


What if it just open & close browser?

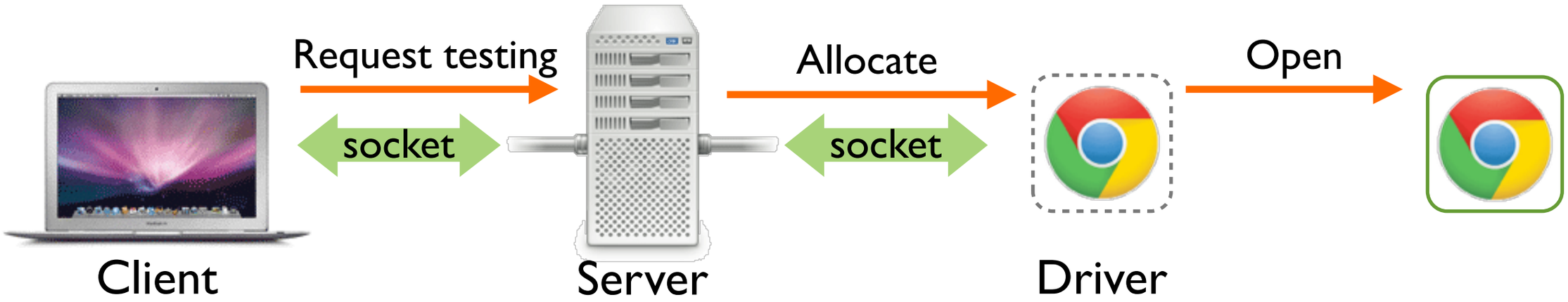
How it works



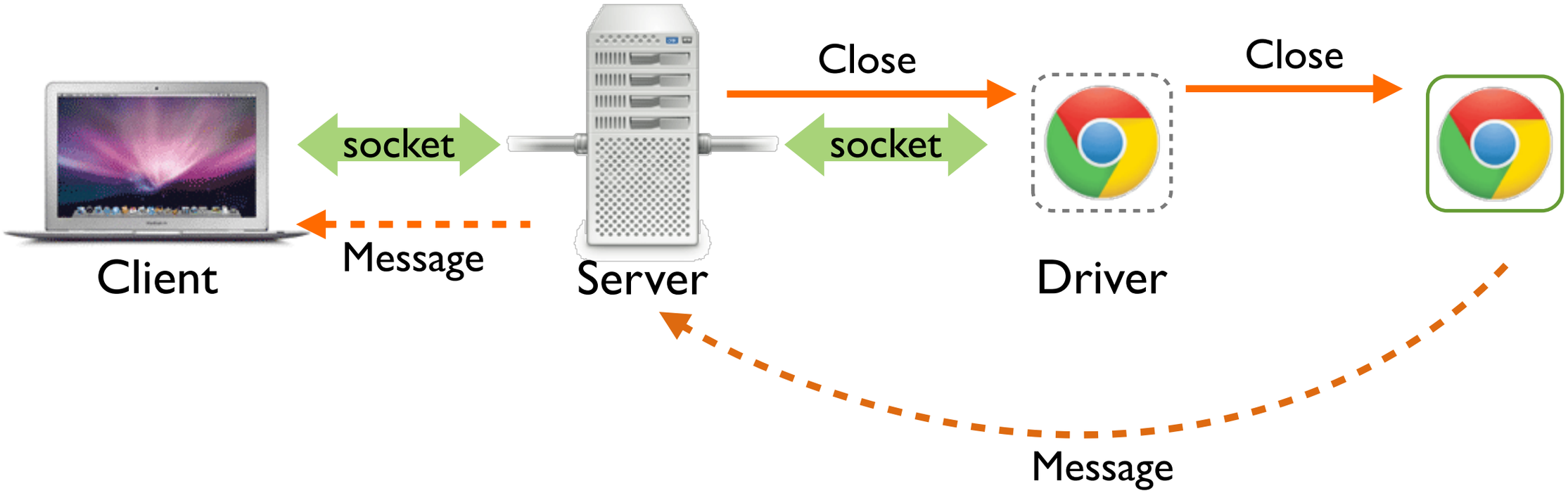
How it works



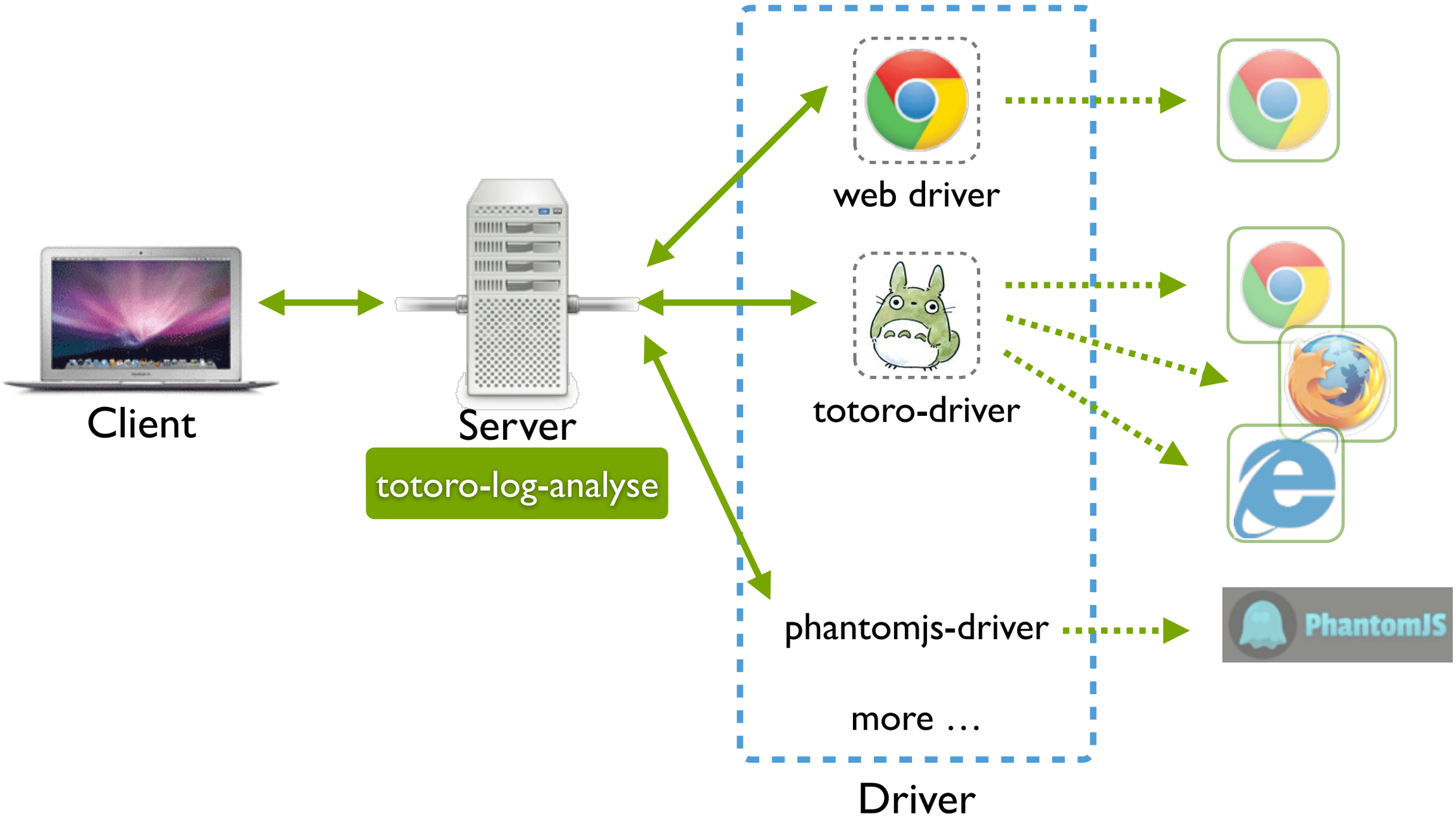
How it works


Request testing
socket
Allocate
socket
Open
Client
Server
Driver

How it works


Close
Close
socket
socket
Message
Client
Server
Driver
Message

Overall view



Overall view

- totoro
- totoro-server
- driver (web driver, totoro-driver)
- totoro-log-analyse

Compare

	totoro	**karma**	**testling-ci**	**selenium**
support all browsers	√	✗	√	√
free to choose test framework	√	✗	✗	/
easy to write a test driver	√	✗	✗	✗
easy to use	5m	1d	1d	5d

Learned

- Clear responsibility
- Keep simple
- Eye for details

3. Then ?

- More driver
- Continuous integration
- Public service

totorojs.org

Thank you!

Q&A