



QCon 全球软件开发大会
INTERNATIONAL SOFTWARE
DEVELOPMENT CONFERENCE

BEIJING 2017

3x3：提速移动交付

胡克秋



促进软件开发领域知识与创新的传播



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全球架构师峰会 2017 [深圳站]

2017年7月7-8日 深圳·华侨城洲际酒店

咨询热线：010-89880682



全球软件开发大会 [上海站]

2017年10月19-21日

咨询热线：010-64738142

自我介绍

- Engineer @ LinkedIn
- 移动平台组

大纲

- LinkedIn移动团队的演化
- 提速移动交付过程中的挑战
- Q&A

过去

- 一个单独分离的移动组
- 30个移动工程师
- 一个月交付一次App

过去

- 一个单独分离的移动组
- 30个移动工程师
- **超过**一个月交付一次App



现在

- 移动工程师分布在各个产品组
- 超过300个移动工程师
- 3x3

3x3

- 一天发布3次
- 代码提交到发布<3个小时

简单?

3x3

- 一天发布3次
- 代码提交到发布<3个小时

简单?

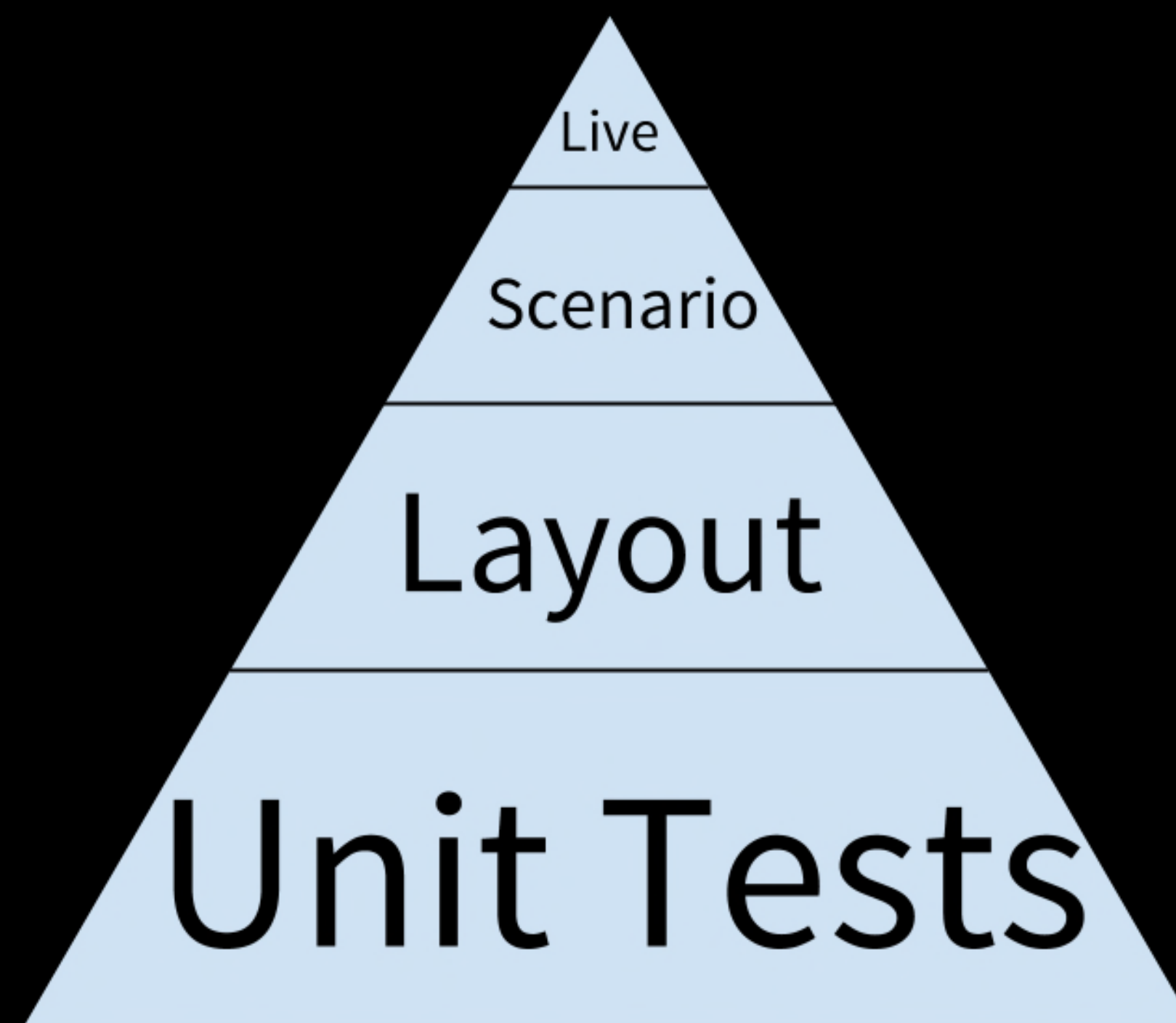
3x3的挑战

- 可靠性
- 速度
- 稳定性



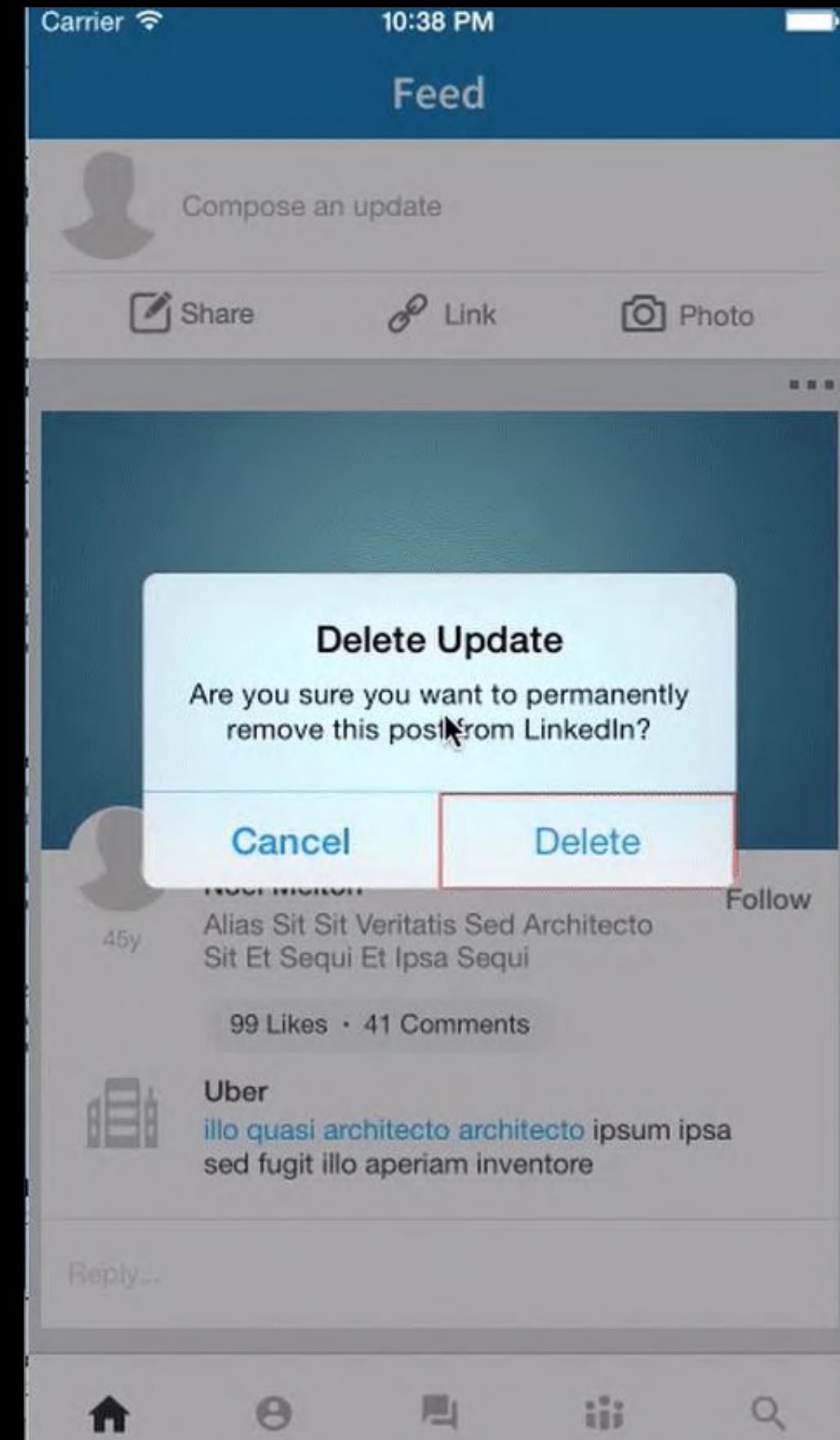
可靠性

测试覆盖率



测试覆盖率

- 情景测试



测试覆盖率



- 情景测试

```
voyager | Build Succeeded | 9/12/16 at 11:19 AM

ContentSearchFacetTests.swift

Voyager | ... | ContentSearchFacetTests.swift | testPeop

var expectedInteractionTrackingKey = "\(VoyagerIntTestCase.tracked
  geo_typeahead_result"

onView(withId(firstTypeaheadResultAllyIdentifier))
  .check(matches(isDisplayed()))
  .expect(checkpoint(SearchVerticalChildViewController.kChildVi
  .expect(request(searchWithLocationFacetRequest as URLRequest!
  .expect(interactionEvent(expectedInteractionTrackingKey, .SHC
  .expect(pageViewEvent("\(VoyagerIntTestCase.trackerPrefix)\(k
  .perform(tap())

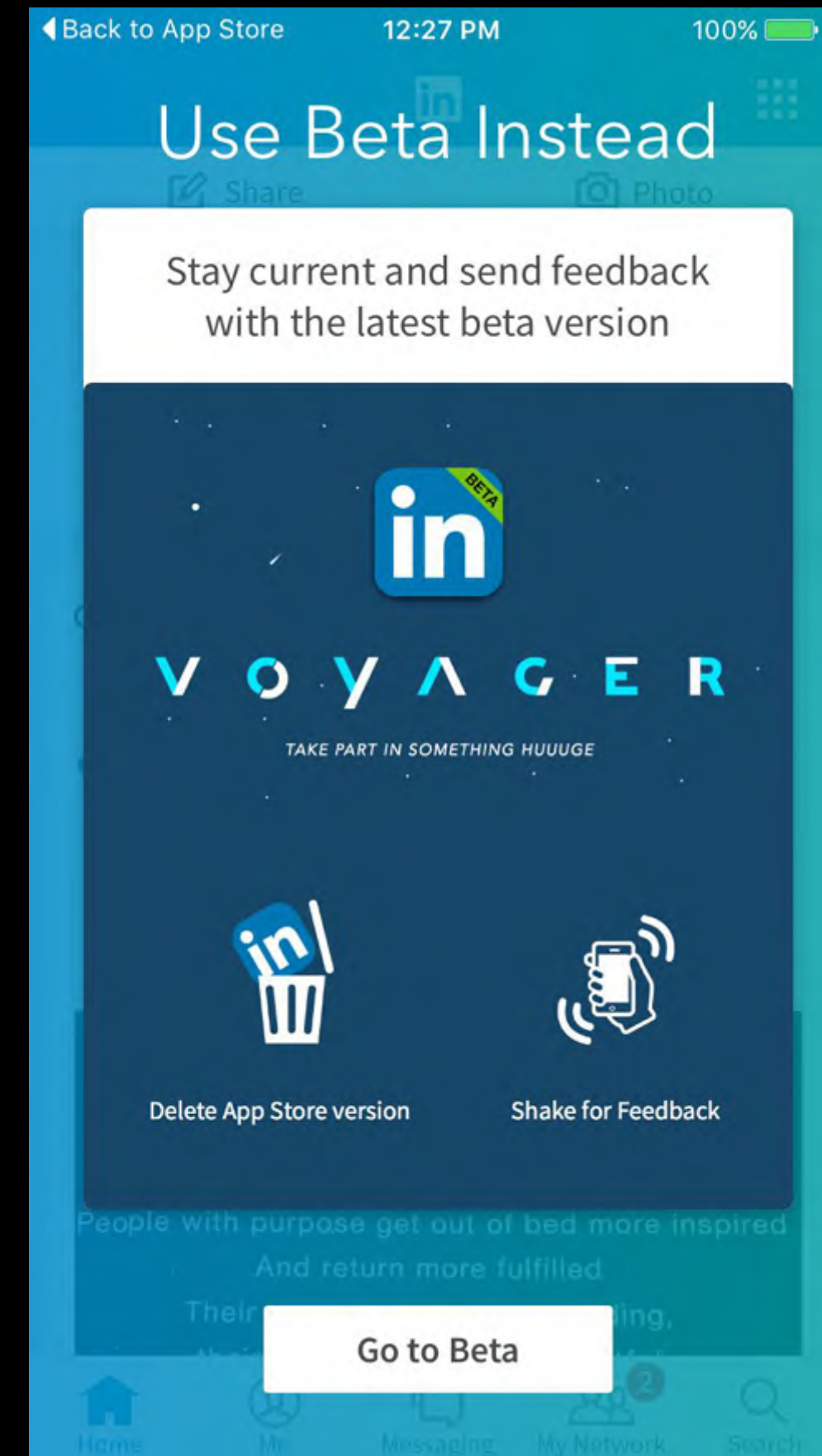
// Verify that selected location is shown in the location textfiel
onView(withId(AllyIdentifiers.kSearchJobLocationFacetLabel))
  .check(matches(hasText(SearchSearchHitMock.location)))

// Tap on location textfield, location screen appears
onView(withId(AllyIdentifiers.kSearchJobLocationFacetLabel))
  .expect(checkpoint(TypeaheadSearchViewController.kTypeaheadSe
  .perform(tap())

expectedInteractionTrackingKey = "\(VoyagerIntTestCase.trackerPre
  (TypeaheadSearchViewController.kCancelControlName)"
```

Dogfood (狗粮)

- 员工内部测试



功能标记

- 服务器端控制的功能标记



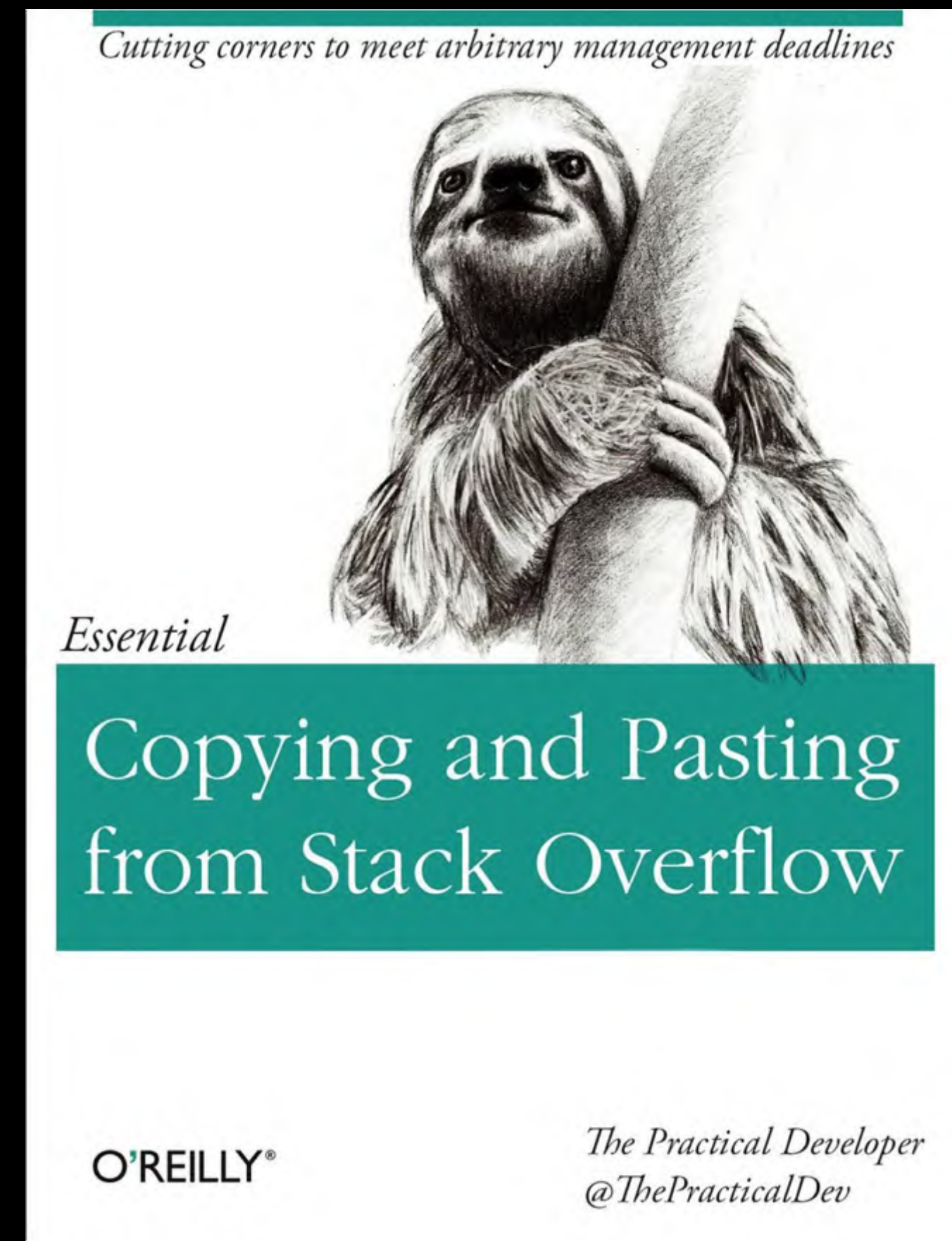
速度！

w 自动化测试框架

- 7 天 → 19个小时 (5 个小时编译 + 14小时测试)

编译器

- 加快编译速度



编译器

- 上硬件



编译器

- 上硬件



编译器

- 上硬件



小插曲

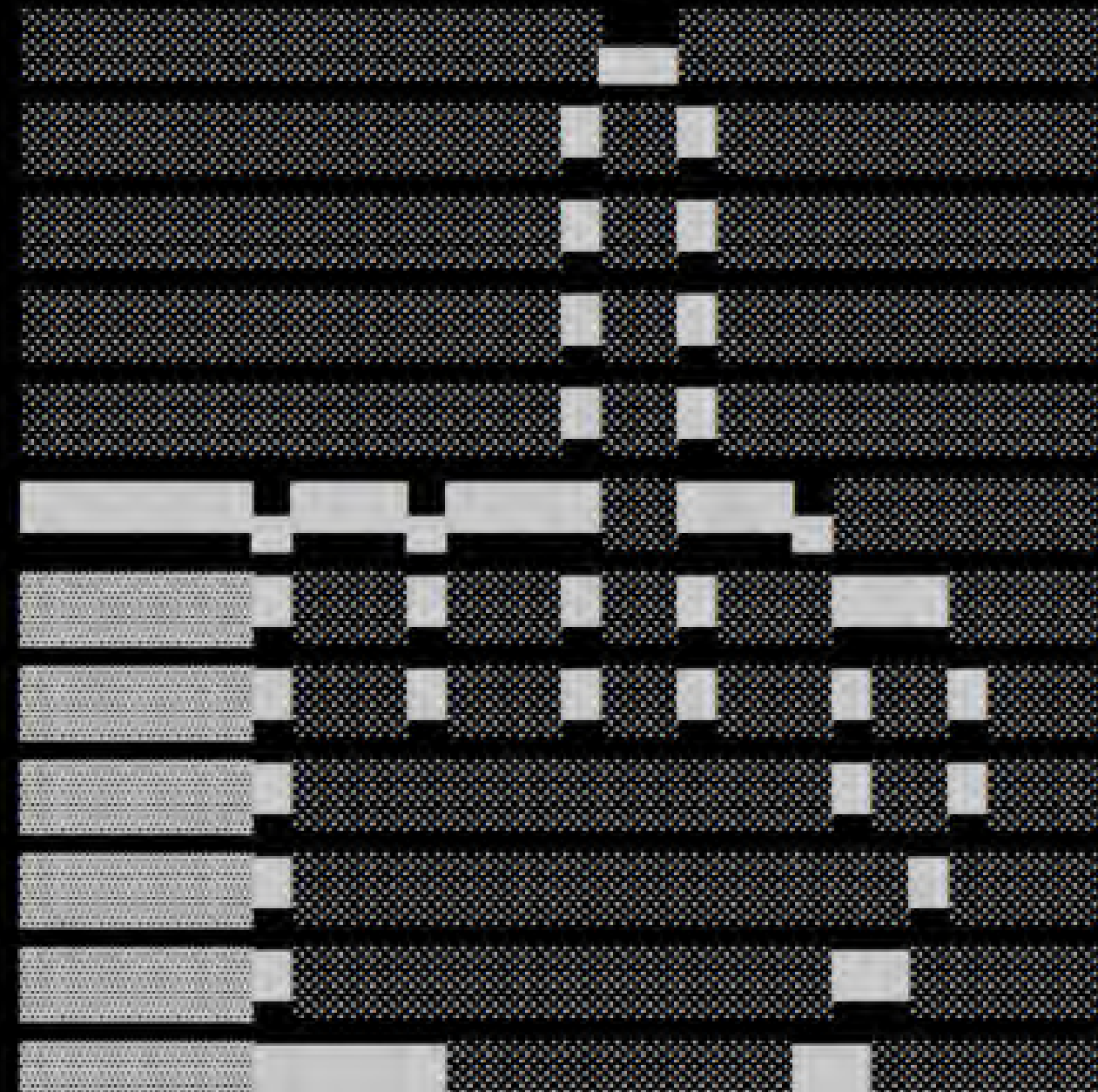
- Swift 2.2 → Swift 3.0



小插曲

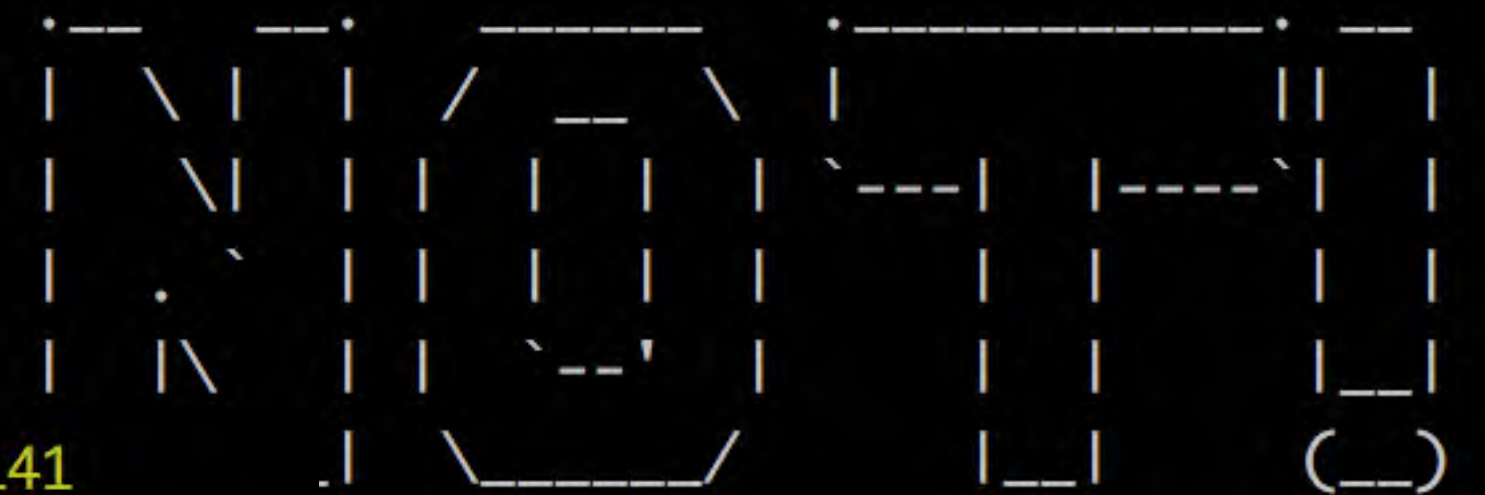
```
commit 0875a21c2a99b934e4c4a12aaa3a1eb7b2107c1
Author: Keqiu Hu <khu@linkedin.com>
Date: Fri Sep 30 11:58:10 2016 -0700
```

VoyagerIntTestsLib -> nln Apple:



```
commit ee93295a63912fa988687f2aa948f1eef634890c
Author: Cezary Wojcik <cwojcik@linkedin.com>
Date: Fri Sep 30 12:11:08 2016 -0700
```

Apple, I think that what you have done is good.



```
commit e089d95270da421ac865f0ad3592c9a7a5ee2141
Author: Samish Chandra Kolli <skolli@linkedin.com>
Date: Fri Sep 30 01:05:09 2016 -0700
```

Never ending game..



```
commit b31dad1444f8395d3dc80e9e47902e7fc4201cb2
Author: Samish Chandra Kolli <skolli@linkedin.com>
Date: Fri Sep 30 00:24:11 2016 -0700
```

why Apple why!!

```
commit f5facec9708db67b75d72ce11bc6a6a6d62fc315
Author: Samish Chandra Kolli <skolli@linkedin.com>
Date: Fri Sep 30 00:00:56 2016 -0700
```

nightmare

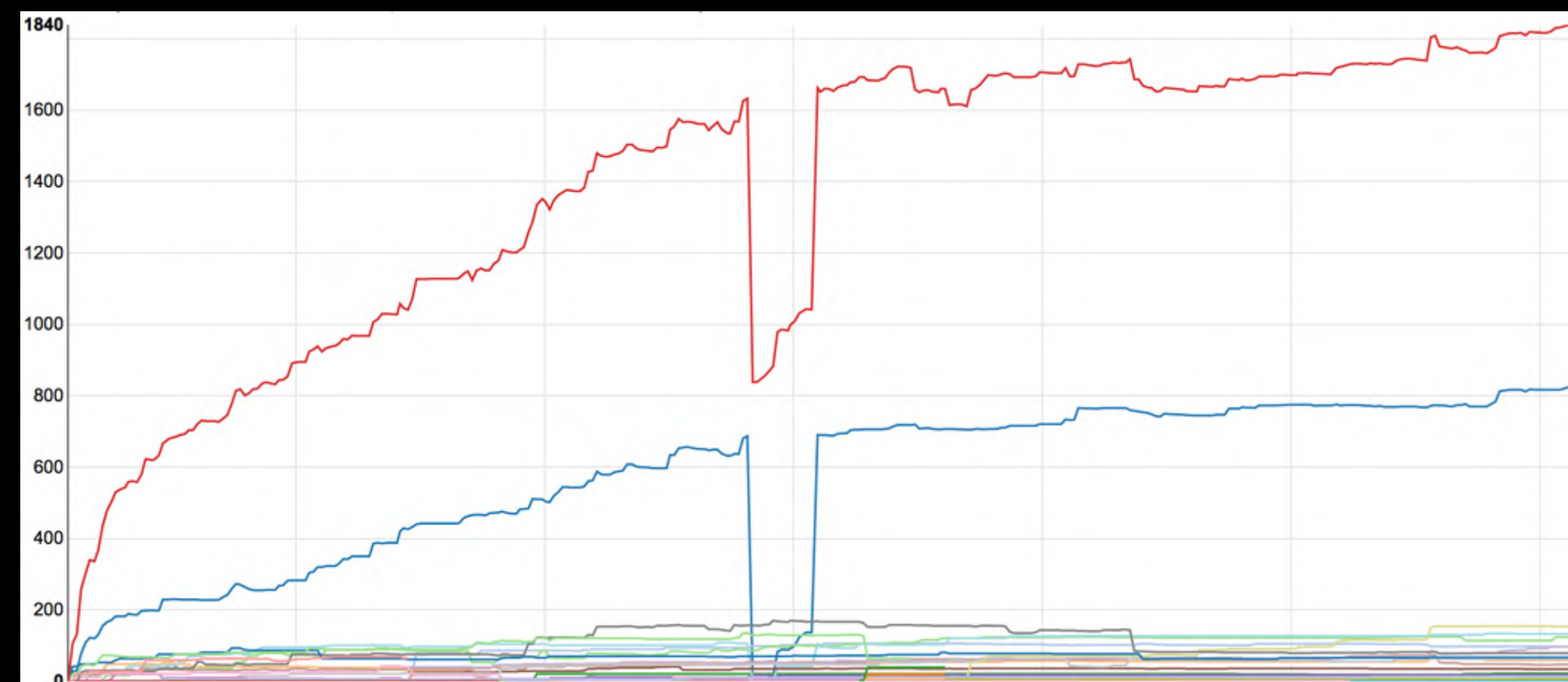
测试框架

- 提速iOS UI测试框架



测试框架

- 1800+ 情景UI测试



分布式编译测试

- 并行编译与测试



稳定性！

稳定性

- CI流程

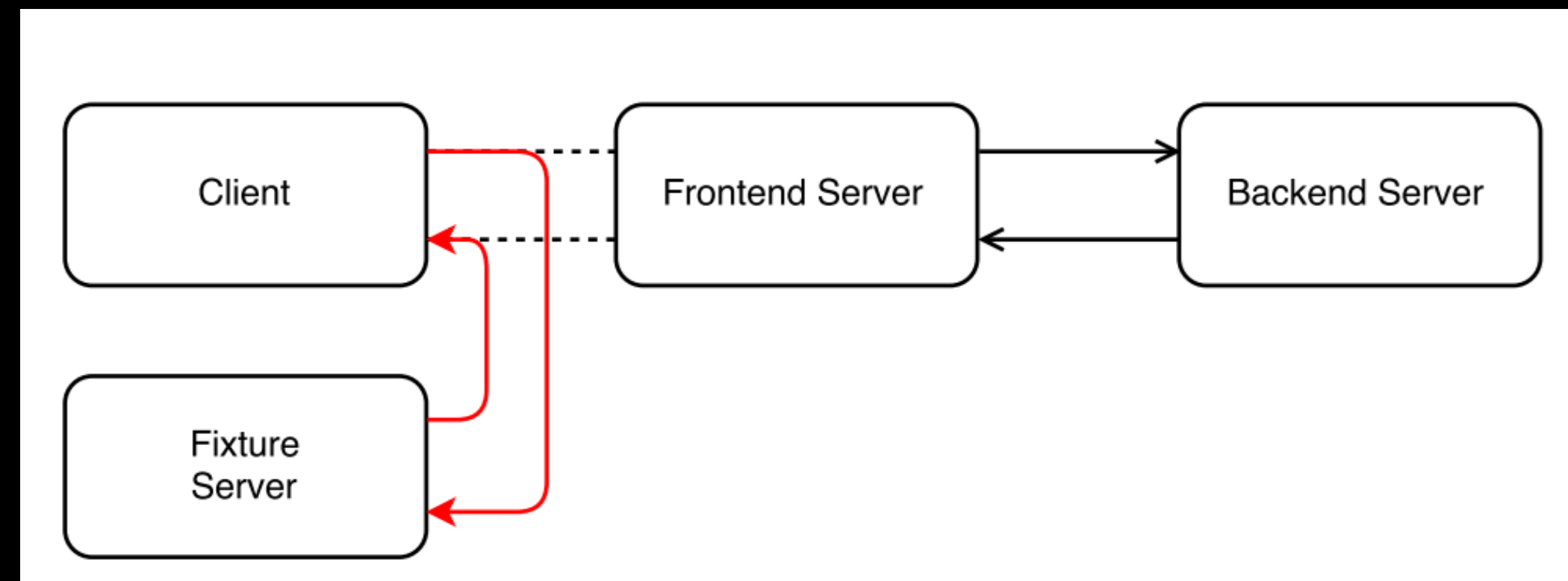


稳定性

- 测试平台的稳定性
- 硬件的稳定性

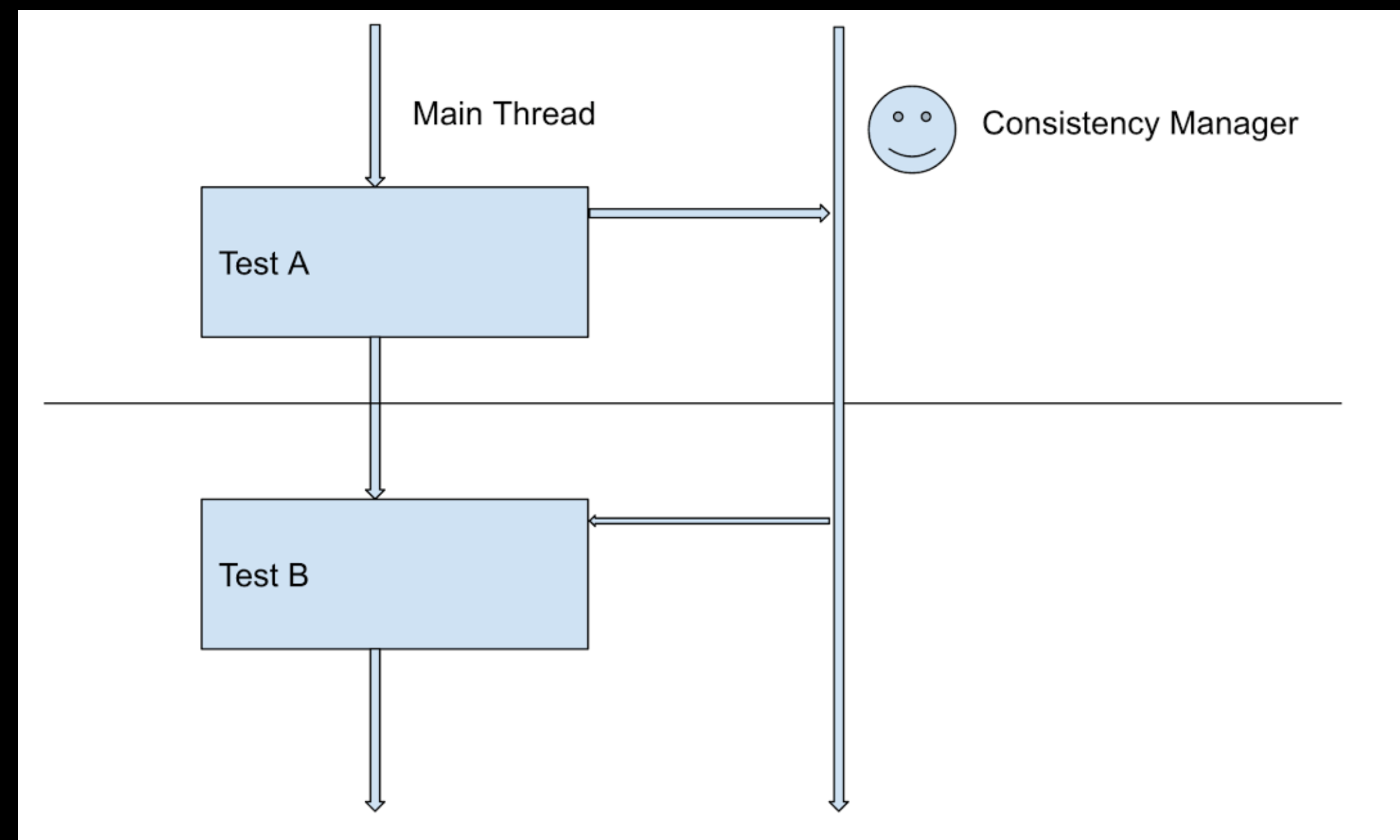
环境的稳定

- 封闭的测试环境



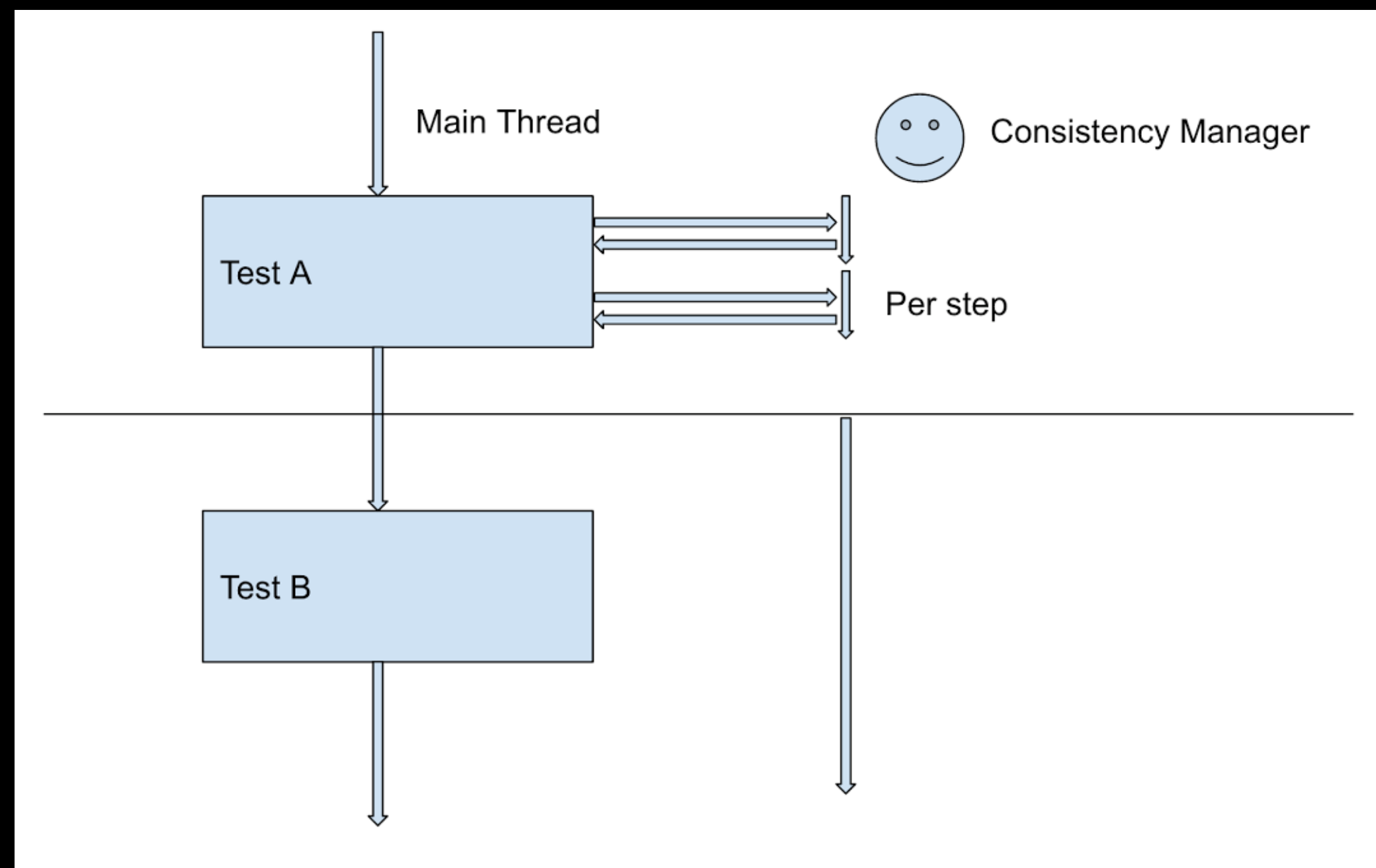
测试框架的稳定性

- 每步之间的线程同步



测试框架的稳定性

- 每步之间的线程同步



测试集的稳定性

$$99.9\%^{1000} = ?$$

99% 95% 90% 80% 50%

测试集的稳定性

$$99.9\%^{1000} = 36.7\%$$

99% 95% 90% 80% 50%

自动隔离系统

- 写不稳定的测试不如不写
- 自动隔离不稳定测试

分布式测试的稳定性

- 10台机器同时跑测试
- $95\%^{10} = 60\%$

分布式测试的稳定性

- 10台机器同时跑测试
- $95\%^{10} = 60\%$
- 机器不够用了 😞

一台机器跑多个模拟器？

Project: 蓝色药丸

- Matrix里面的蓝色药丸



Project: 蓝色药丸

- Matrix里面的蓝色药丸

Viagra: How a Little Blue Pill Changed the World

Medically reviewed on Nov 26, 2016 by [L. Anderson, PharmD](#)

[View as slideshow](#)

Viagra Makes History

Viagra (sildenafil) is one of the most widely-known prescription drug names on the U.S. market. Often dubbed "the little blue pill", Viagra (sildenafil) was the first phosphodiesterase 5 (PDE5) inhibitor approved to treat **erectile dysfunction** (ED). ED is a common sexual problem for men and its frequency increases with age.

It is estimated roughly 30 million men in the U.S. and over 100 million men worldwide suffer from ED. A large U.S. survey determined about 50 percent of men 40 to 70 years of age experience some degree of ED.



Project: 蓝色药丸

- Matrix里面的蓝色药丸



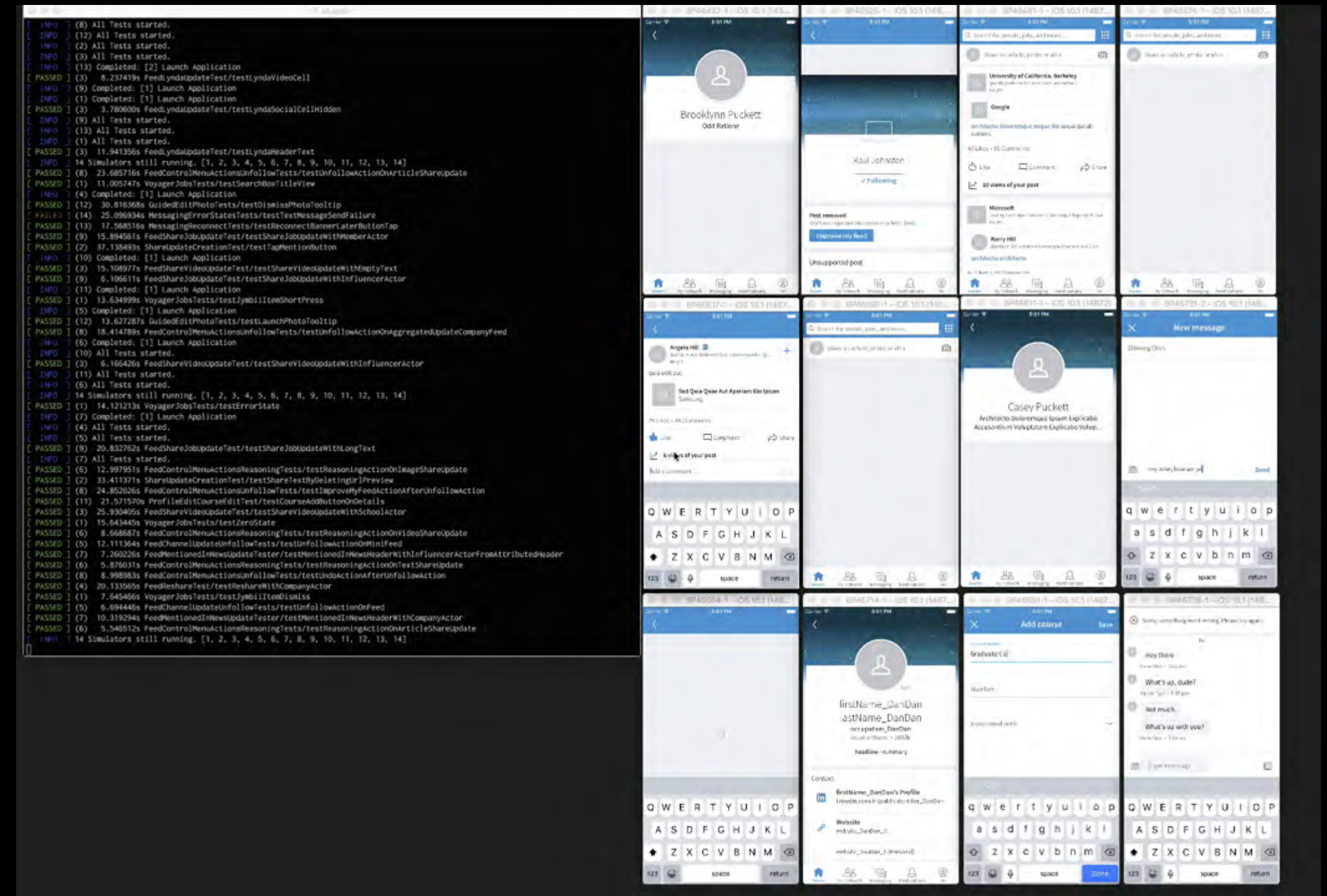
Project: 蓝色药丸

- 封装Facebook's Xctool?
- Xctool 2.0?



Project: 蓝色药丸

- 一台机器并行跑多个模拟器
- 支持 iOS Unit Test和UI Test Bundle.



Project: 蓝色药丸

- 开源
- <https://github.com/linkedin/bluepill>



Project: 蓝色药丸

1. 写个配置文件

```
{  
  
  "app": "./Sample.app", # Relative path or abs path  
  
  "scheme-path": "./SampleAppTestScheme.xcscheme", #  
  Relative path or abs path  
  
  "output-dir": "./build/" # Relative path or abs path  
}
```

2. 跑起来

```
./bluepill -c config.json
```





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Thanks!



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