

# 高性能路由实现 for OpenResty

--by Yuansheng



# 王院生

2014 年初识 OpenResty

2015 年写了

《OpenResty 最佳实践》  
聚集了国内开发者  
2017 年作为技术合伙加入 OpenResty Inc.



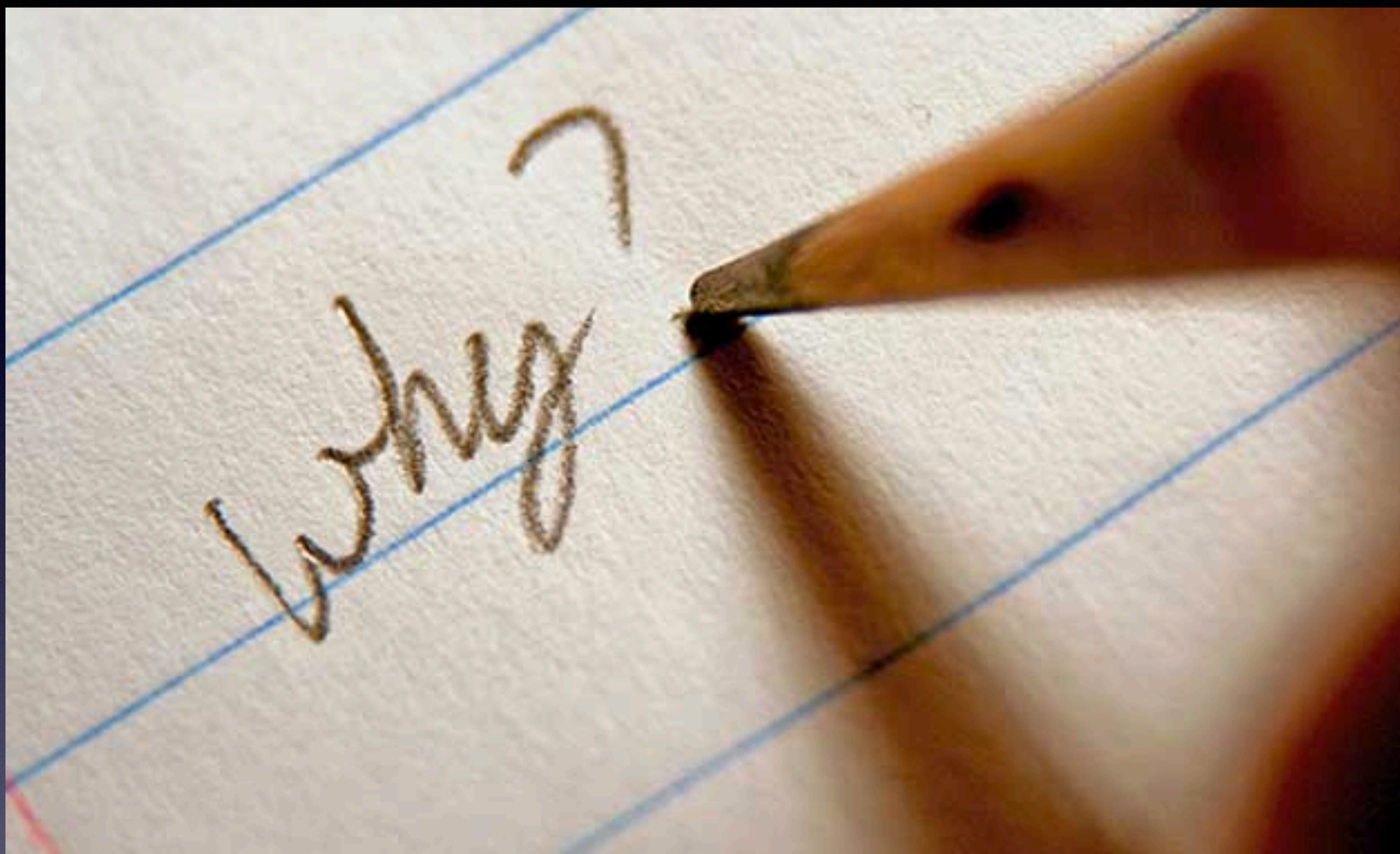


# OpenResty 基金会

<https://shimo.im/sheet/8Mi2SJko4hMBftTH/RIDOC>

	11/25/2018		to:wenming	-3325	USD	-20015	
8	11/26/2018	fred 吴		1000	RMB	1127	alipay to wenming, and wenming don
9	12/12/2018		to: Hong Kong Ruifeng Acco	-11266	HKD	-11266	trademark of openresty
10	12/12/2018	fred 吴		1000	RMB	1135	alipay to wenming, and wenming don
11	12/13/2018		to: Hong Kong Ruifeng Acco	-2930	HKD	-2930	trademark of openresty
12	12/13/2018			-11343	HKD	-11343	total: 9978 RMB == 11343 HKD  trademark of openresty mainland china openresty beijing meetup and archsum taxi: 61 RMB + 173 RMB round-trip ticket: 4840 RMB hotel: 2654 MRB
13	1/18/2019		to:wenming	-10415.7	KHD		9000 RMB == 10415.7 HKD trademark of openresty USA
14	30/1/2019	fred 吴		1000	RMB	1168	alipay to wenming, and wenming don
15	20/2/2019	fred 吴		1000	RMB	1163	alipay to wenming, and wenming don
16	19/3/2019	fred 吴		1000	RMB	1169	alipay to wenming, and wenming don
17	3/29/2019		to:wenming	-10137	RMB	-11835	beijing meetup 3-23, wenming and wan 3-22: zhuhai to beijing train D924: 3029 hanting zhongguancun hotel: 2751 RMB 3-28: beijing to zhuhai flight cz3736: 4 3-28 zhuhai to home taxi: 197 RMB total: 10137 RMB
18	16/4/2019	fred 吴		1000	RMB	1168	alipay to wenming, and wenming don
19							





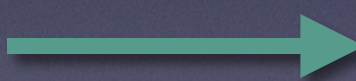
为什么选择做个高性能路由组件



# Web development framework

Model

View

Controller  resty-r3



# 程序员的牛皮

他们不会的都得问我

一天写了几千行代码

单身屌丝，手速谁与争锋

几万收入

做过超大项目，几亿 PV 小意思

维护公司核心项目

分分钟解决困扰大家已久的问题



# 程序员的牛皮

## 都在用我的代码



## 运行在更多计算机上



# 严谨程度

基础组件 > 业务应用

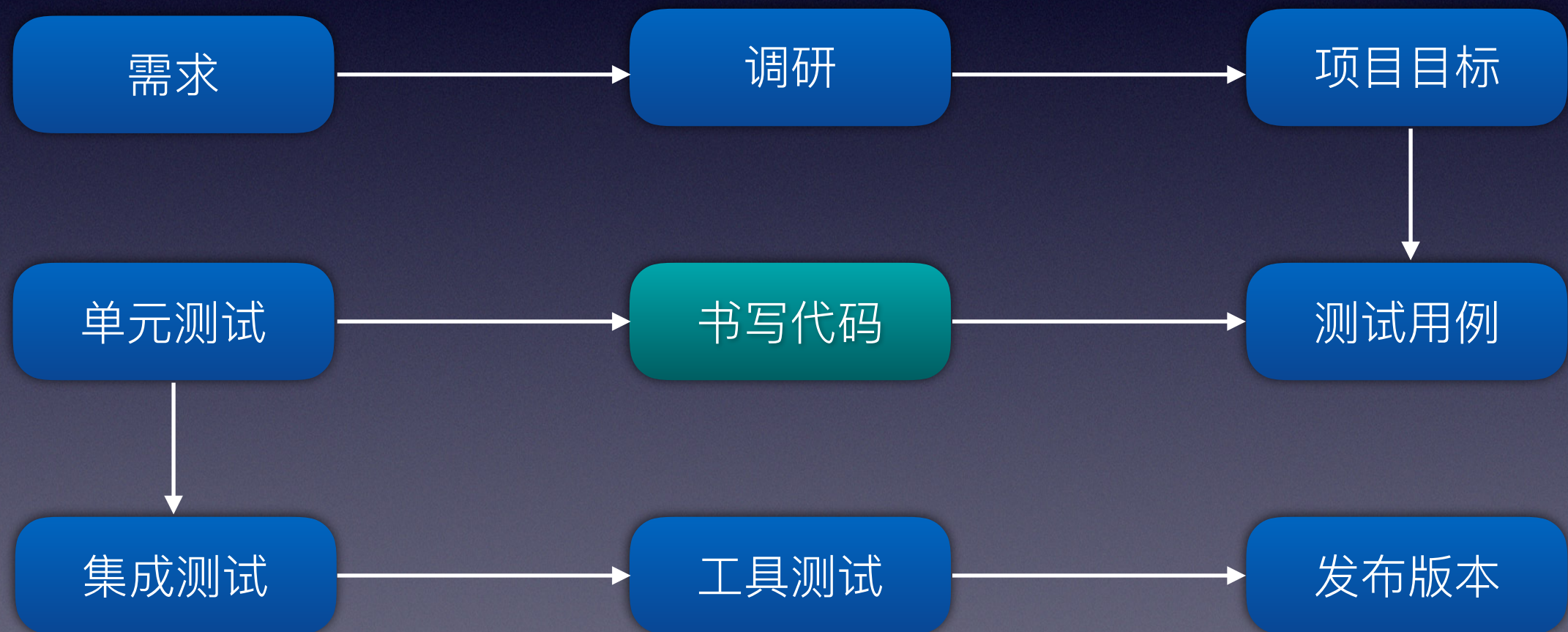


# 基础组件开发

• 小而美	• 需求变化较小
• 稳定性要求高	• 小需求，可能大改动
• 技术难度大	• 处理异常分支
• 关系咬合比较紧密，偶尔重构	
• 对于不兼容，老鸟通常是改，新鸟喜欢新增 API	



# 基础组件开发





# 项目目标

技术目标

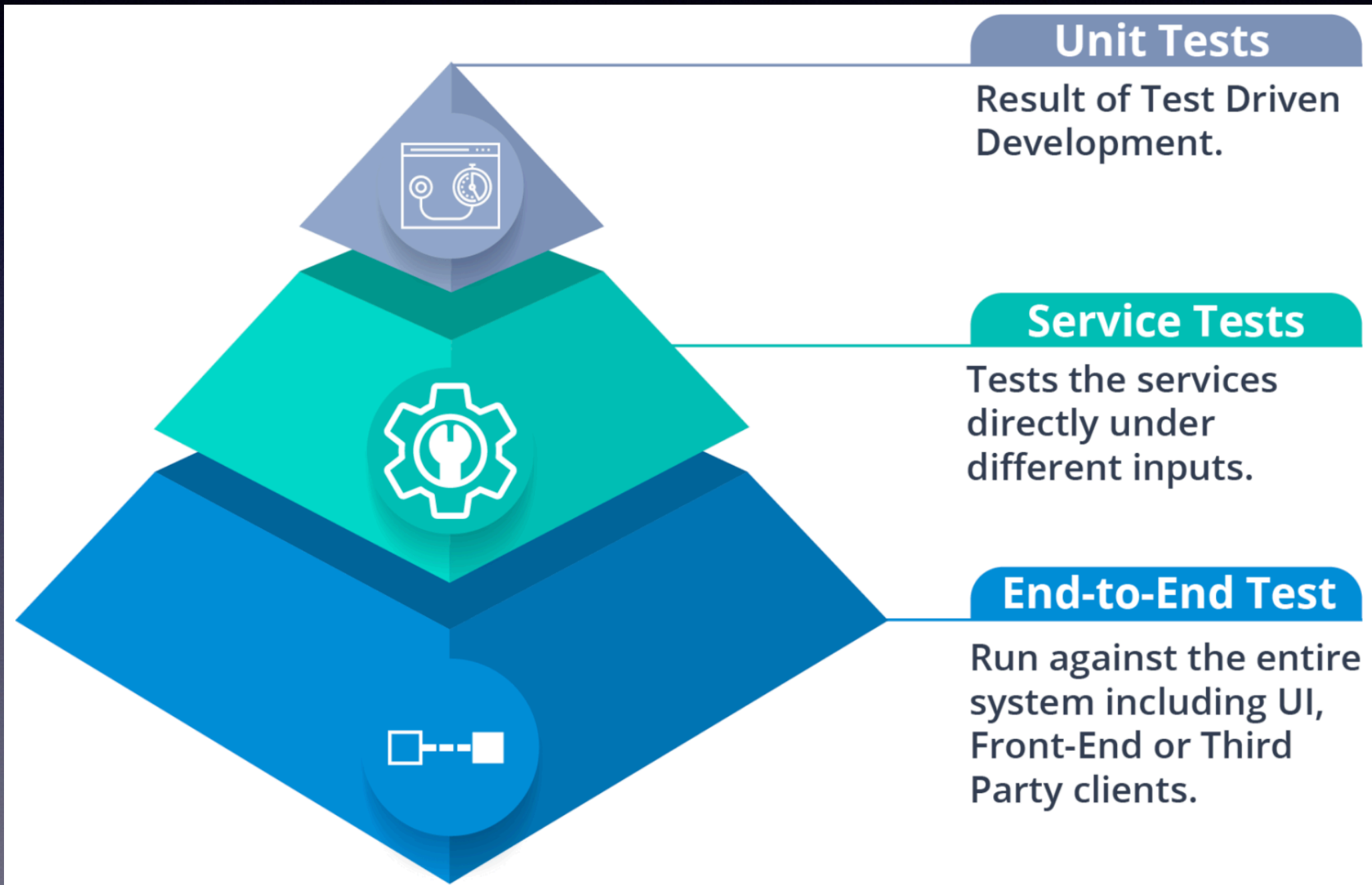
暴露 API

最小用例

与用户确认协调



# 测试模式





# 测试用例框架

	<b>Test::Nginx</b>	<b>busted</b>
语言	more Perl	Lua
生存世界	OpenResty	标准 Lua
抽象层次	高	低
学习难度	高	低
代码覆盖率	无	有
功能点覆盖	Test::Nginx > busted	
使用场景	OpenResty 及周边	Lua 单元测试



# Test::Nginx

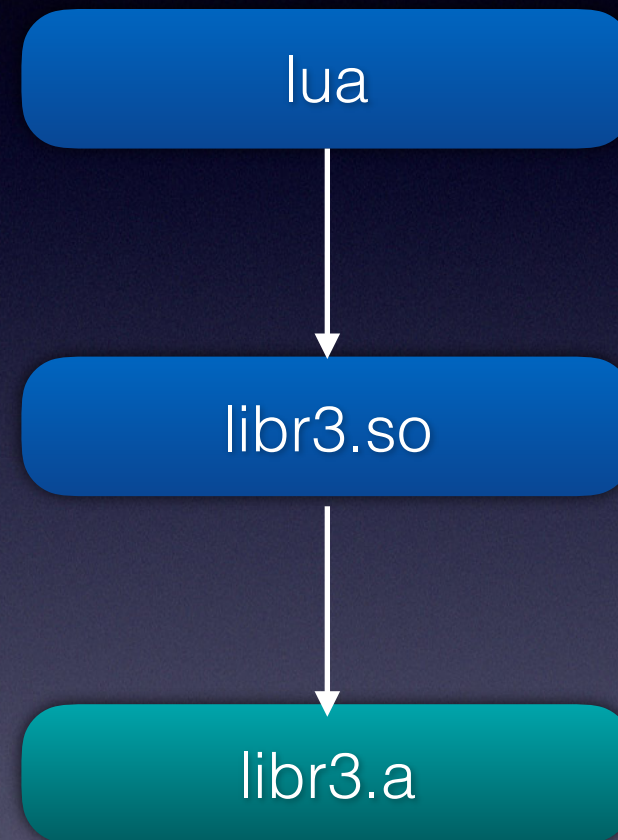
- 基于 Test::Base
- Perl 语言（上手难）
- 语言无关的测试框架
- 很强的扩展性（虽然难）
- 可搭配 valgrind
- 可搭配 asan



# FFI vs FFI



One step



Two steps



# One step vs Two step

170 行  $\xrightarrow{\text{ffi.cdef}}$  20 行

去掉了 r3 头文件中结构体的依赖



# Only simple code

libr3.so

compiled with libr3.a

```
void *  
r3_create(int cap)  
{  
    R3Node *tree = r3_tree_create(cap);  
    return (void *)tree;  
}
```

```
void  
r3_free(void * tree)  
{  
    if (tree == NULL) {  
        return;  
    }  
  
    r3_tree_free((R3Node *)tree);  
}
```



# 开源最友好的CI

Travis CI

About UsBlogStatusHelp

Sam Iamm

Search all repositories

My Repositories +

✓ one-fish/two-fish # 2686

Duration: 33 min 46 sec  
Finished: 30 minutes ago

✓ hop-on/pop # 7001

Duration: 22 min 54 sec  
Finished: about an hour ago

✓ horton-hears/awho # 209

Duration: 53 sec  
Finished: about 2 hours ago

green-eggs / ham

build passing

CurrentBranchesBuild HistoryPull Requests

More options

✓ master adding in Oh the places you'll go!

#209 passed

Restart build

You'll be on your way up!  
You'll be seeing great sights!

Commit abc123

Branch master

Sven Fuchs authored and committed

Ran for 53 sec  
about 2 hours ago

Job log

View config


Remove log

Raw log



# TRAVIS-CI

Travis CI




Dashboard

Changelog

Documentation

Help




YuanSheng Wang

Settings


Sign Out


MY ACCOUNT

YuanSheng Wang

Sync account


ORGANIZATIONS



OpenResty

MISSING AN ORGANIZATION?

Review and add your authorized organizations.

OpenResty


@openresty



Repositories


We're only showing your public repositories. You can find your private projects on [travis-ci.com](https://travis-ci.com).



Legacy Services Integration

core

docker-openresty


Settings

lua-resty-core

Settings



# TRAVIS-CI

 **openresty / lua-resty-core**

Unwatch 62

Unstar 441

Fork 156

<> Code

Issues 13

Pull requests 32

Projects 0

Wiki

Insights

Settings

New FFI-based API for lua-nginx-module 

Edit

[Manage topics](#)

469 commits

8 branches

47 releases

31 contributors

Branch: master ▾


New pull request












Create new file

Upload files

Find File

Clone or download ▾

 **chronolaw** and **thibaultcha** optimize: removed redundant requires in core.lua. Latest commit d5bcc2c 2 days ago

 <a href="#">.github</a>	<a href="#">misc: added templates for issue and pull request.</a>	2 years ago
 <a href="#">lib</a>	optimize: removed redundant requires in core.lua.	2 days ago
 <a href="#">t</a>	regex: disabled PCRE JIT compilation and regex caching in `init` phas...	3 days ago
 <a href="#">.gitattributes</a>	added a .gitattributes file to correct GitHub's language tag.	4 years ago
 <a href="#">.gitignore</a>	misc: gitignore: added parallel tests servroot directories.	4 months ago
 <a href="#">.luacheckrc</a>	luacheck: added 'ngx' as a global.	2 years ago
 <a href="#">.travis.yml</a>	tests: pipe.t: assert the behavior of ngx.pipe.spawn() when error_log...	2 months ago
 <a href="#">Makefile</a>	Makefile: we did not install the ngx.ssl.* module files.	3 years ago
 <a href="#">README.markdown</a>	doc: fixed a few typos in various places of the documentation.	22 days ago
 <a href="#">dist.ini</a>	opm: now we require ngx_lua = 0.10.13.	a year ago
 <a href="#">valgrind.suppress</a>	feature: added support for ARM64 (AArch64).	6 months ago

that's all






# C/C++ library 测试工具

工具名	测试点
ASAN mode (Compiling with Address Sanitizer (ASAN) with clang)	内存泄露
Valgrind mode	内存泄露
wrk	协助发请求，压力测试
火焰图	确定性能瓶颈（比如 CPU） 辅助发现问题



# 创建里程碑


 [yuy / lua-resty-r3](#) Private


Unwatch ▾ 3 ★ St

Code Issues 2 Pull requests 0 Projects 0 Wiki Insights Settings


Releases Tags

Latest release

 v0.1

 f97bdfb


## v0.1


 **memphis** released this just now

change: determine the meaning of the parameter according to the numbe...

...r of parameters.

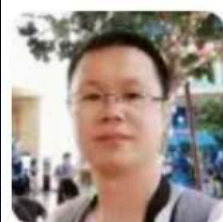
▼ Assets 2

 Source code (zip)

 Source code (tar.gz)



# Q & A



院生   
广东 珠海

