

# The Past, Present, and *Future* of OpenResty

OpenResty 的过去、现在和未来

😊 *agentzh@gmail.com* 😊

章亦春 (*agentzh*)

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I just wanted to build  
a *personal* blog...

最初我其实只想搭个  
个人博客...

search.yahoo.cn

chaoslawful

lz.taobao.com



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

Click anywhere or press a button to close

set\_by\_lua

ssl\_certificate\_by\_lua

body\_filter\_by\_lua

rewrite\_by\_lua

init\_by\_lua

init\_worker\_by\_lua

log\_by\_lua

content\_by\_lua

header\_filter\_by\_lua

access\_by\_lua



lua-resty-string

lua-resty-dns

lua-resty-beanstalkd

lua-resty-session

lua-resty-qless lua-resty-postgres

lua-resty-upstream-healthcheck

lua-resty-lrucache

lua-resty-scrypt lua-resty-cassandra

lua-resty-template

lua-resty-stack lua-resty-lock

lua-resty-hmac lua-resty-smtp

lua-resty-rabbitmqstomp lua-resty-mongol

lua-resty-uuid lua-resty-random

lua-resty-libcjson

lua-resty-http-simple lua-resty-handlersocket

lua-resty-ssdb lua-resty-websocket

lua-resty-http lua-resty-logger-socket

lua-resty-upload

lua-resty-redis

lua-resty-core

lua-resty-memcached

lua-resty-mysql

API Server  
HTTP Proxy  
Web Application

The *all-inclusive* philosophy

兼容并包的哲学

Simple  
Small  
Fast  
Flexible

# Pragmatism

# 实用主义

-*Ofun*

Mailing lists

GitHub

QQ Group

Conferences

"Programming OpenResty"

《OpenResty 编程》



# Package Management

iresty.org

```
$ iresty install agentzh/resty.foo
```

```
$ iresty remove agentzh/resty.foo
```

```
$ iresty search bar
```

```
$ restydoc resty.blah
```

```
$ resty -e 'ngx.say("Hello OpenResty!")'
```

# Lua libraries

## OpenResty Applications

# Limited LuaRocks Compatibility

More official binary distributions



# Windows

Ubuntu

Debian

Fedora

CentOS

RHEL

...

iresty.org -> binary packages

# TCP server support

ngx\_stream\_echo\_module

ngx\_stream\_lua\_module

# UDP server support

# Templating

lua-resty-tt2 (jemplate)



# Streaming Regex

libsregex  
(ngx\_replace\_filter)  
Intel HyperScan?

lua-resty-pegex

# The *Edge* Language

```
zone agentzh.org;
```

```
host('cdn.agentzh.org'),  
    uri-suffix(".swf")
```

=>

```
redirect(host: "ajax.agentzh.org"),  
done;
```

Official *WAF* Platform

官方的 WAF 平台

DSL -> highly optimized Lua

*Stateful* service support  
(DHT, gossip, CRDT)



ngx.semaphore

*List*-typed values in ngx.shared.DICT  
(Redis style)

Shm-based *databases*  
(relational, time-series, and etc)

init\_by\_lua + cosockets

# Better cosockets

dgram\_socket:bind()

Connection-pool based  
concurrency control and *queueing*  
in cosockets.

ngx.connection



```
local connection = require "ngx.connection"  
local conn = connection.new(fd)  
conn:wait_read()  
conn:wait_write()  
conn:wait_rw()
```

# Upstream

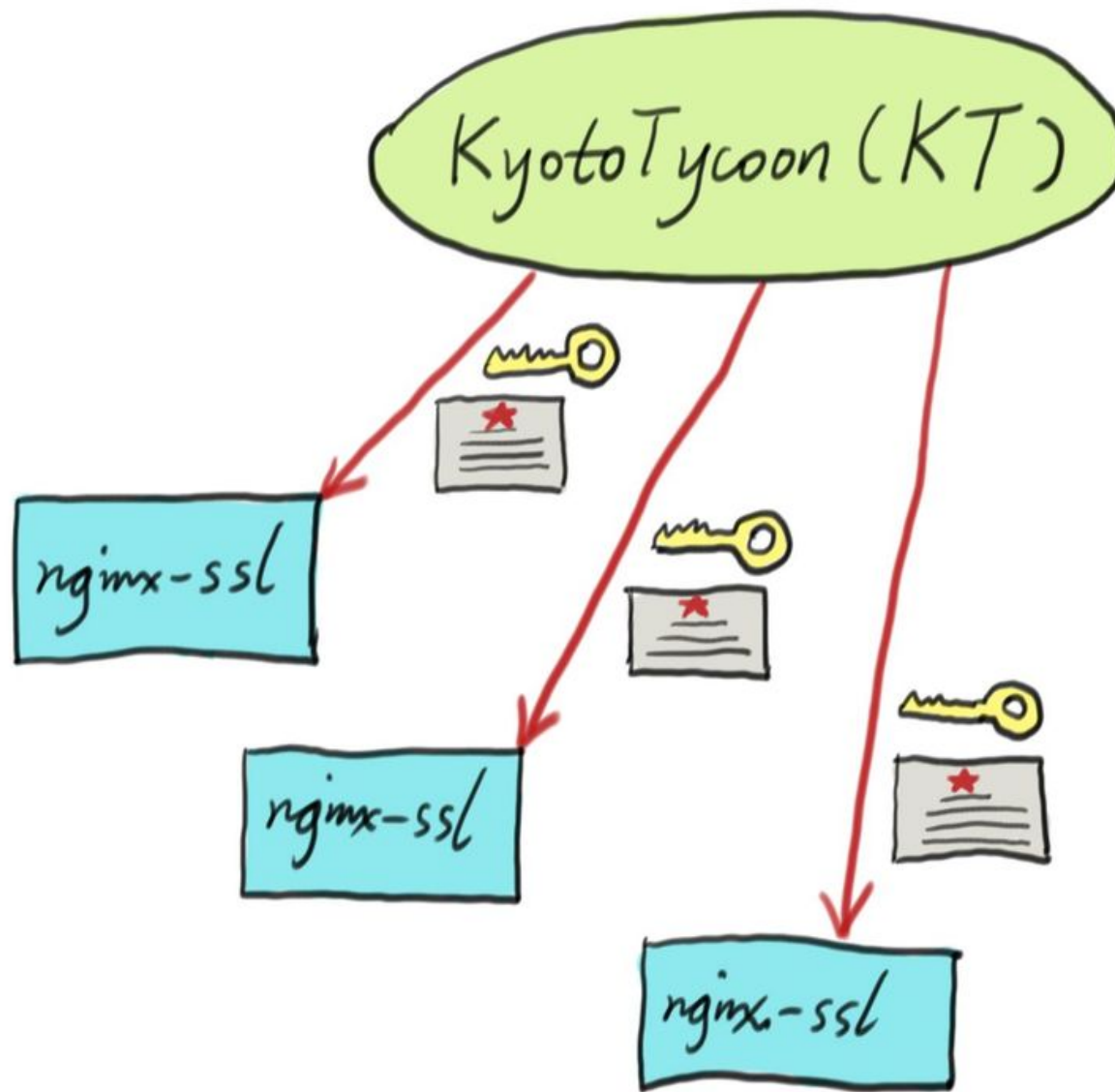
balancer\_by\_lua

```
upstream {  
    server 0.0.0.0;  
    balancer_by_lua '  
        local balancer = require "ngx.balancer"  
        local host, port = my_load_backend_addr()  
        assert(balancer.set_cur_peer(host, port))  
    '  
}
```

# SSL



ssl\_certificate\_by\_lua



ssl\_session\_fetch\_by\_lua

ssl\_session\_store\_by\_lua



# SSL session ticket key rotation

# LuaJIT

# New LuaJIT GC

string.buffer

# *Dialects* for Perl/Python/Ruby/PHP atop LuaJIT

# Debugging

`gdb (breakpoints, GC, stack)`

systemtap  
(stap++, nginx-systemtap-toolkit)



lldb

(from LLVM)

# eBPF (Linux)

# The *Y* Language

```
$ ylang -Tgdb -o foo.py foo.y
```

```
$ ylang -Tlldb -o foo.py foo.y
```

```
$ ylang -Tstap++ -o foo.sxx foo.y
```

```
$ ylang -Tebpf -o foo foo.y
```

Mozilla rr

Test::Nginx::Socket (DSL again)

😊 *Any questions?* 😊

欢迎提问

