OpenResty的未来

wenming@openresty.org

关于这个分享

- 只有30分钟，不会深入细节
- 了解 OpenResty 的定位和生态圈

未来取决于

- 技术
- 社区

章亦春 OpenResty 开源项目创建者

喜欢不务正业，Nginx 与 Systemtap 贡献者。以写程序为主，喜欢摆弄各种 UNIX风格的工具， 以及不同的编程语，例如 C/C++、Lua、Perl、Python、Haskell 等等

京东、新浪、奇虎、锤子、优酷、又拍、魅族、阿里云、网易
CloudFlare、Github

Nginx

by Igor Sysoev et al.

Web Server

OpenResty

by Yichun Zhang et al.

Web Application Server

Lua

by Roberto Ierusalimschy et al.

Programming Language

使用lua来动态控制NGINX

高性能、灵活、可维护

OpenResty == ngx_lua?

它只是 OpenResty

50多个项目中的一个

OpenResty包含

- **测试**
- 静态跟踪 & **动态跟踪**
- 代码检测
- resty-cli & restydoc
- 二进制包：Linux、Windows
- docker包
- ngx_lua
- lua-resty-* 库
- OPM
- 动态上游
- LuaJIT
- 官网

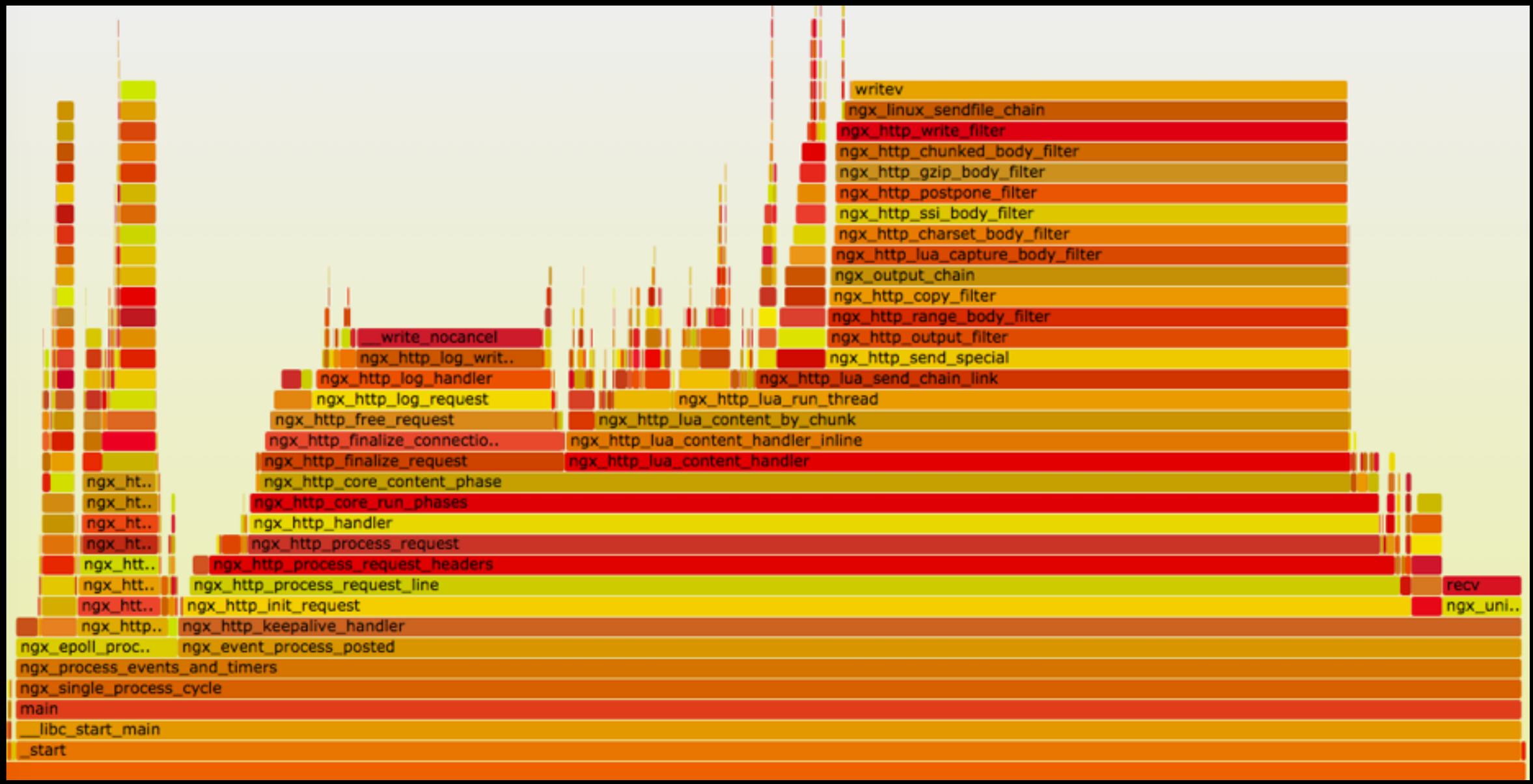
测试

- 区别程序员和程序猿
- https://qa.openresty.org/
- Test::Nginx、mockeagain、EC2 Test Cluster

动态跟踪

- 什么是动态调试?
- DTrace & SystemTap
- nginx-systemtap-toolkit
- stapxx

动态跟踪


writev
ngx_linux_sendfile_chain
ngx_http_write_filter
ngx_http_chunked_body_filter
ngx_http_gzip_body_filter
ngx_http_postpone_filter
ngx_http_ssi_body_filter
ngx_http_charset_body_filter
ngx_http_lua_capture_body_filter
ngx_output_chain
ngx_http_copy_filter
ngx_http_range_body_filter
ngx_http_output_filter
ngx_http_send_special
__write_nocancel
ngx_http_log_writ..
ngx_http_log_handler
ngx_http_lua_send_chain_link
ngx_http_log_request
ngx_http_lua_run_thread
ngx_http_free_request
ngx_http_lua_content_by_chunk
ngx_http_finalize_connectio..
ngx_http_lua_content_handler_inline
ngx_http_finalize_request
ngx_http_lua_content_handler
ngx_ht..
ngx_http_core_content_phase
ngx_ht..
ngx_http_core_run_phases
ngx_ht..
ngx_http_handler
ngx_ht..
ngx_http_process_request
ngx_htt..
ngx_http_process_request_headers
ngx_htt..
ngx_http_process_request_line
recv
ngx_htt..
ngx_http_init_request
ngx_uni..
ngx_http..
ngx_http_keepalive_handler
ngx_epoll_proc..
ngx_event_process_posted
ngx_process_events_and_timers
ngx_single_process_cycle
main
__libc_start_main
_start

动态跟踪：Y语言

https://openresty.org/posts/dynamic-tracing/

标准库

Core Libraries

Core Libraries are bundled in OpenResty package, and you don't need to separately install them.

- lua-resty-core — New FFI-based Lua API for the ngx_lua module
- lua-resty-upstream-healthcheck — Health Checker for Nginx Upstream Servers in Pure Lua
- lua-resty-string — String utilities and common hash functions for ngx_lua and LuaJIT
- lua-resty-lock — Simple nonblocking lock API for ngx_lua based on shared memory dictionaries
- lua-resty-lrucache — Lua-land LRU Cache based on LuaJIT FFI
- lua-resty-dns — DNS resolver for the Nginx Lua module
- lua-resty-upload — Streaming reader and parser for HTTP file uploading based on ngx_lua cosocket
- lua-resty-websocket — Lua WebSocket implementation for the ngx_lua module
- lua-resty-mysql — Non-blocking Lua MySQL client driver for ngx_lua based on the cosocket API
- lua-resty-memcached — Lua memcached client driver for the ngx_lua based on the cosocket API
- lua-resty-redis — Lua Redis client driver for the ngx_lua based on the cosocket API
- lua-redis-parser — Redis reply parser and request constructor library for Lua
- lua-rds-parser — Resty-DBD-Stream (RDS) parser for Lua written in C
- lua-cjson — Lua cJSON is a fast JSON encoding / parsing module for Lua

Web Frameworks

- Lapis — Lapis is a framework for building web applications using MoonScript or Lua that runs inside of a customized version of Nginx called OpenResty
- lor (Github) — A fast and minimalist web framework based on OpenResty
- Vanilla — An OpenResty Web Framework
- Lusty — Lua RESTful Web Application Framework, an extensible and speedy web framework
- GIN — A fast, low-latency, low-memory footprint, web JSON-API framework with Test Driven Development helpers and patterns
- Quick Server — A Server Framework Based on OpenResty
- Sailor — A Lua MVC Web Framework
- lua-resty-rack — A simple and extensible HTTP server framework for OpenResty
- MOOCHINE — A simple and lightweight web framework based on OpenResty
- sinatra-openresty — Sinatra ported to OpenResty framework
- lj-web — Lightweight Web Framework Based On ngx_openresty
- Gimlet Cocktail — A micro web application framework for OpenResty written in Moonscript inspired by Martini & Sinatra
- durap — Durap is a Lua Web Framework based on OpenResty.
- Ziggy Stardust — Ziggy Stardust (or just "stardust") is a simple nginx/Lua framework inspired by Sinatra, Express, and Mercury
- zLua — A Codeigniter like Lua framework based on OpenResty
- lua-resty-stack — OpenResty Simple Application Stack
- dodolu — A lightweight web framework based on OpenResty
- Octopus (Github) — The Lua Web Platform
- vicky — A restful framework for openresty,inspired by expressjs and koa.

Databases and Storages

- lua-resty-mysql — Non-blocking Lua MySQL client driver for ngx_lua based on the cosocket API
- lua-resty-postgres — Nonblocking Lua PostgreSQL driver library for ngx_lua
- pgmoon — A pure Lua Postgres driver for use in OpenResy & more
- lua-resty-orm — Simple ORM for OpenResty
- lua-resty-mvc — You don't need that complicated MVC framework! With just a plain folder with several simple files, you can enjoy basic but most frequently used MVC features.
- lua-resty-memcached — Lua memcached client driver for the ngx_lua based on the cosocket API
- lua-resty-redis — Lua Redis client driver for the ngx_lua based on the cosocket API
- lua-resty-redis-connector — Connection utilities for lua-resty-redis, making it easy and reliable to connect to Redis hosts, either directly or via Redis Sentinel
- lua-resty-redis-cluster — OpenResty Redis Cluster Client
- lua-cassandra - Pure Lua, feature-rich, and cluster-aware Cassandra client
- lua-resty-cassandra — Pure Lua Cassandra client using CQL binary protocol
- lua-resty-bloomd — A client library based on ngx_lua to interface with bloomd servers
- lua-resty-riak — Lua riak protocol buffer client driver for the ngx_lua based on the cosocket API
- lua-resty-mongol — Native Lua Mongodb driver which supports both luasocket and ngx_lua based on the cosocket API
- lua-resty-mongo — Lua mongodb client driver for the ngx_lua based on the cosocket API
- lua-mongo — A simple Lua Mongo driver (a fork made to work with co-sockets)
- lua-resty-kyototycoon — Lua client driver for KyotoTycoon using its native wire protocol (OpenResty/ngx_lua)
- lua-resty-kyototycoon — Lua client driver for KyotoTycoon using its binary protocol
- lua-resty-tarantool — Library for working with Tarantool from Nginx with the embedded Lua module or with OpeRresty
- lua-nginx-tarantool — A driver for a NoSQL database in a Lua script Tarantool build on fast nginx cosockets
- lua-resty-ssdb — Lua ssdb client driver for the ngx_lua based on the cosocket API, SSDB is a leveldb server
- ledis-openresty — Lua LedisDB client driver for the ngx_lua based on the cosocket API
- lua-resty-fastdfs — Nonblocking Lua FastDFS driver library for ngx_lua
- lua-resty-statsd — StatsD client for OpenResty
- lua-resty-dogstatsd — A client for DogStatsD, an extension of the StatsD metric server for Datadog. Using nginx cosocket API
- openresty-statsd — A Lua module for OpenResty to send metrics to StatsD

汇总

- https://github.com/bungle/awesome-resty

深入业务

- DNS
- WAF
- 正则引擎
- DSL

roadmap 2016（17项）

- Redis-style features in lua_shared_dict
- ngx.semaphore API
- native WAF support
- the new DFA-based Perl-compatible regular expression engine
- OpenResty port of the Perl Pegex top-down parser generator framework

贯穿OpenResty的主旋律

合适的小语言、兼容并包

社区

- 创始人的影响
- 仁慈的君主

> 春哥好，有一个线上系统，偶尔出现nginx 所有worker 持续cpu 100%的情况，不响应新进来的其他请求。需要重启解决。
> 代码里面没有死循环的逻辑。应该用什么工具去调试呢?

这种情形应当使用 on-CPU 火焰图进行分析：

https://github.com/openresty/nginx-systemtap-toolkit#sample-bt （C 级别）

https://github.com/openresty/stapxx#lj-lua-stacks （Lua 级别）

一看图就一目了然了。

从你描述的情况看，应当是你的某个 Lua 代码路径不正确地陷入了死循环（或者过热），因此 Lua 级别的火焰图最有用，特别是指定 —arg detailed=1 命令行选项的时候。

当然，也可以使用 gdb. 配合 nginx-gdb-utils 项目的 lbt 命令：

https://github.com/openresty/nginx-gdb-utils#lbt

你可以使用 gdb 的 batch 模式以避免长时间阻塞 nginx worker（不过既然 nginx worker
已无法再响应新的请求了，阻塞不阻塞也无所谓了）。

值得一的是，即使使用 gdb 的 batch 模式，其对目标进程产生的影响也远大于 systemtap 工具 :)

社区

- 邮件列表 & 微信群（核心开发每日出没）
- QQ群
- 大会
- 委员会

长远的发展：

非营利组织（NPO）

永续、脱离某个人

- 启动早于锤子捐助
- OpenResty Software Foundation Limited
- 珠海开源软件技术促进中心

- 翻译
- 案例
- 布道
- 汇总
- 传播
- 播种

后续

- programming OpenResty
- 赞助 OpenResty 本身以及相关技术的发展

更多...