Memcached based on OpenResty

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典型用户

- 又拍云、CloudFlare：CDN 边缘节点、流量调度
- 京东：API 网关和商品详情页面
- 12306：替代 NGINX 的反向代理和负载均衡，余票查询
- 360企业安全：实现安全业务的服务端逻辑
- 腾讯：实现游戏广告系统的业务逻辑
- KONG：云原生 API gateway & Service Mash

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OpenResty 软件基金会

- 注册在香港的慈善组织
- 锤子科技近百万人民币的捐款
- foundation.openresty.org

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One word for 2018
OpenResty Community

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商业公司

开源项目　　基金会

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2019
Community Over Code

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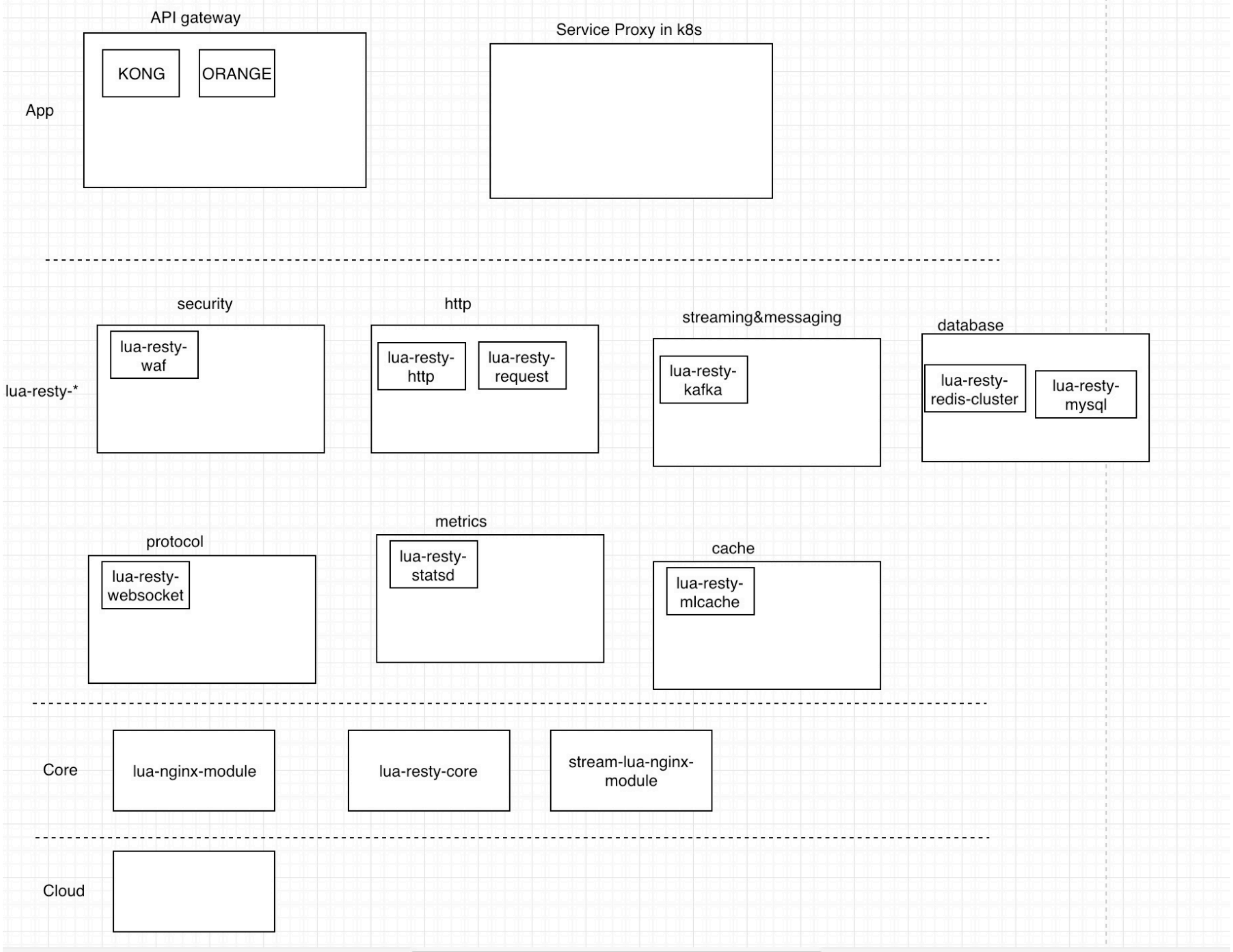
API gateway
KONG
ORANGE
App
Service Proxy in k8s
security
lua-resty-waf
http
lua-resty-http
lua-resty-request
streaming&messaging
lua-resty-kafka
database
lua-resty-redis-cluster
lua-resty-mysql
lua-resty-*
protocol
lua-resty-websocket
metrics
lua-resty-statsd
cache
lua-resty-mlcache
Core
lua-nginx-module
lua-resty-core
stream-lua-nginx-module
Cloud

- 又拍云、平安科技、京东、腾讯、中国电信、深信服……

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大纲

- why
    - 为什么造 memcached 的轮子?
    - 为什么可以基于 OpenResty 做?
- what
    - memcached 协议
    - stream-lua-nginx-module，shared dict
- how
    - 小步开发
    - 性能优化

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为什么?

- 原始需求：兼容旧的浏览器，在网关中储存 session ID
- 不想引入不必要的技术栈
- 足够简单
- OpenResty 对四层的支持

动手前准备什么

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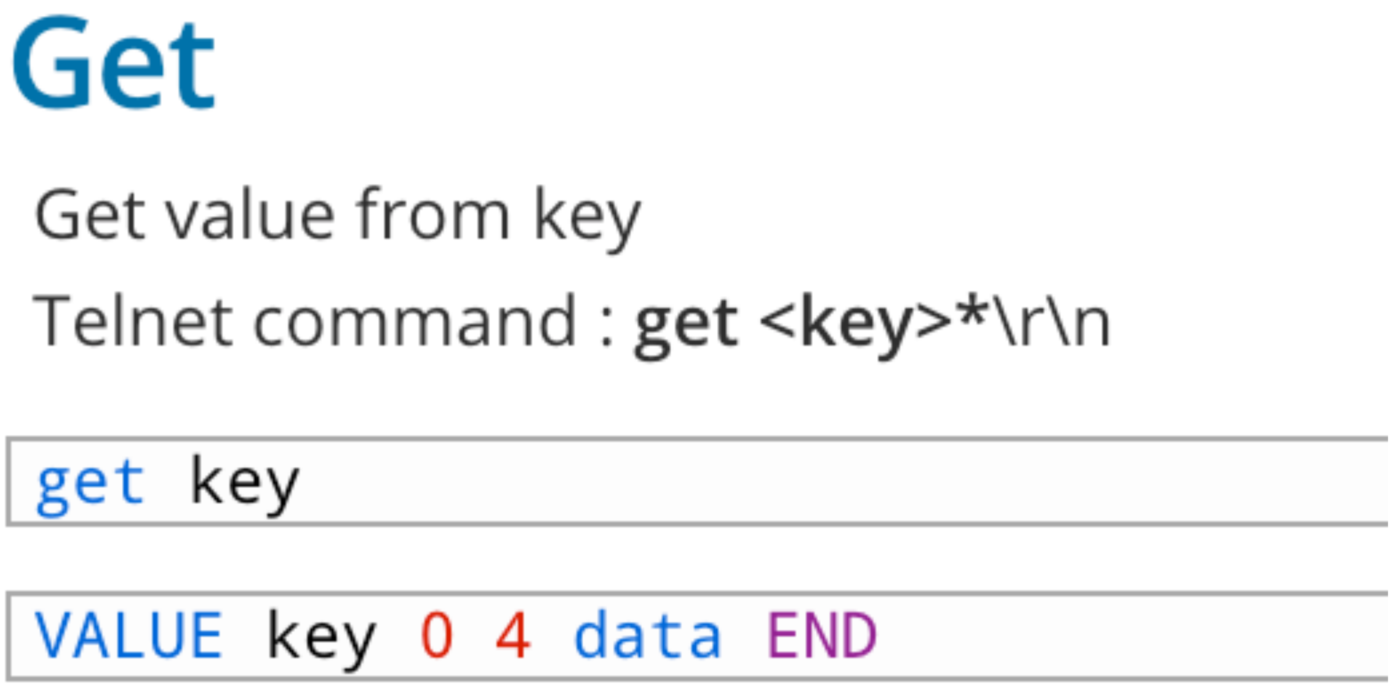
support commands



Get

Get value from key

Telnet command : **get <key>***\r\n

```
get key
```

```
VALUE key 0 4 data END
```

Set

Store key/value pair in Memcached

Telnet command : **set <key> <flags> <exptime> <bytes> [noreply]**\r\n**<value>**\r\n

```
set key 0 900 4 data
```

```
STORED
```

- "ERROR\r\n"

  means the client sent a nonexistent command name.

- "CLIENT_ERROR <error>\r\n"

  means some sort of client error in the input line, i.e. the input doesn't conform to the protocol in some way. <error> is a human-readable error string.

- "SERVER_ERROR <error>\r\n"

  means some sort of server error prevents the server from carrying out the command. <error> is a human-readable error string. In cases of severe server errors, which make it impossible to continue serving the client (this shouldn't normally happen), the server will close the connection after sending the error line. This is the only case in which the server closes a connection to a client.

技术方案

- 数据存放在 shared dict 中
- 使用 stream module，支持 TCP 协议的查询
- 兼容 memcached 协议

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show me the code

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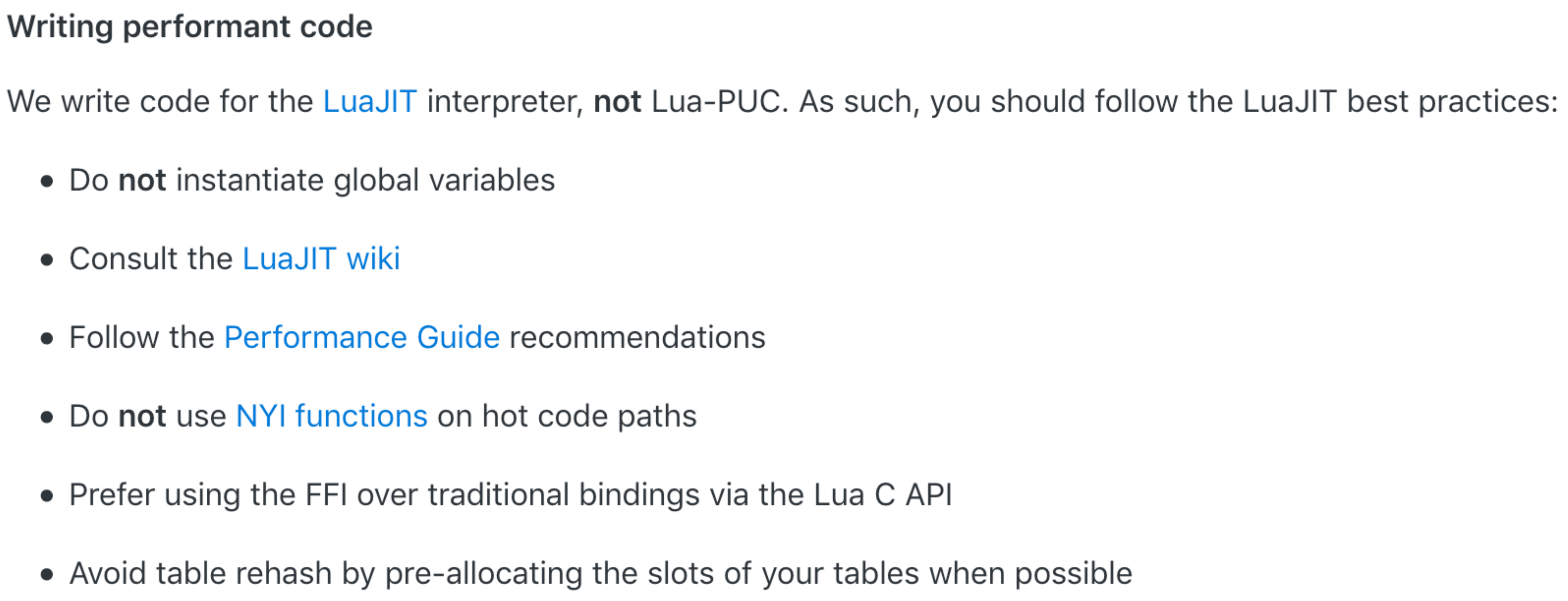

Writing performant code

We write code for the LuaJIT interpreter, **not** Lua-PUC. As such, you should follow the LuaJIT best practices:

- Do **not** instantiate global variables
- Consult the LuaJIT wiki
- Follow the Performance Guide recommendations
- Do **not** use NYI functions on hot code paths
- Prefer using the FFI over traditional bindings via the Lua C API
- Avoid table rehash by pre-allocating the slots of your tables when possible

https://github.com/Kong/kong/blob/master/CONTRIBUTING.md#writing-performant-code

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Q&A

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