



OpsWorld 运维世界大会·深圳站

Ops, Not Only Ops

王春生

个人介绍

1. 2004年加入Sina，从事LAMP平台的设计和开发，国内早期大规模平台设计和实践者，Sina大规模数据库平台的设计和开发者。
2. 从事过SA，DBA，服务端／客户端开发，系统分析师和系统架构师等岗位。
3. 参与翻译了两本小书《puppet3 cookbook》 《NoSQL权威指南》
4. 微博@平凡的香草 微信@chunshengster

Ops生态



概念探讨：DevOps

sre

- 产品功能SLA度量与分析
- 产品功能故障复盘分析
- 提升产品功能稳定性
- 提升产品功能用户响应速度
- 自动化

noop

- 开发申请计算存储资源
- 开发部署并切换服务
- 开发实时观看服务活体状态
- 开发排查与解决用户问题

devo
ps

- 产品功能代码测试、部署、回滚
- 产品功能运行状况的监控
- 产品功能故障的排查与解决
- 自动化

op

- 系统安装、配置、维护、优化
- 系统运行状况监控
- 系统故障的排查与解决
- 自动化

Ops 目标与价值





•

•

自动化

•

监控

•

架构

•

SLA

•

SRE

Ops与自动化

- 大量的重复劳动
- 手工的错误
- CheckList 的繁琐
- 缺乏有效机制的保证

Ops与自动化

产品
管理

权限
管理

配置提交

审核

部署

回滚

Puppet / Chef / Ansible / Saltstack / 自研

Ops与自动化



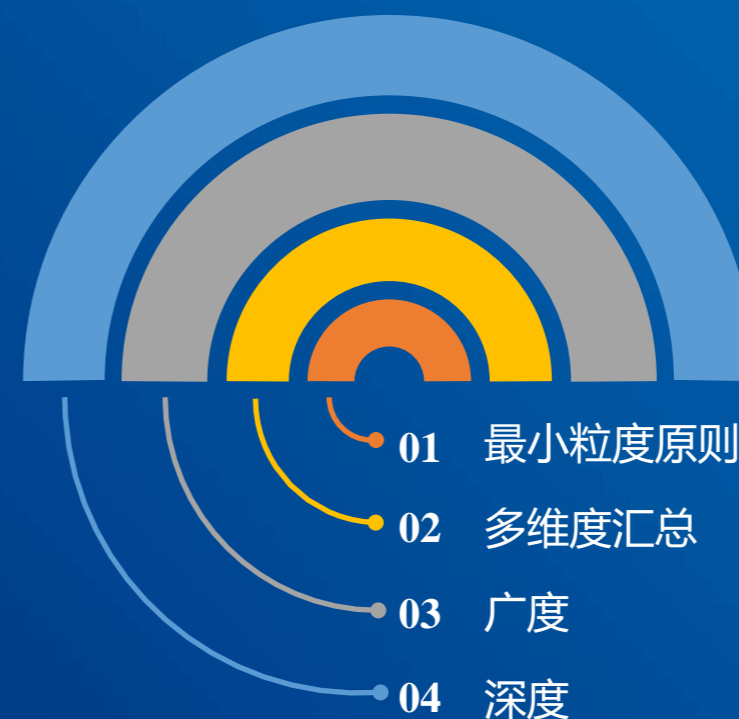
Ops与监控

发现问题 && 定位问题所在

评估影响

评估容量

架构自动化



Ops与监控

基础环境

网络
路由
系统

01

业务监控

QPS
Response time
Error ratio

03

基础服务监控

Nginx ,
PHP-FPM ,
Node ,
Tomcat

02

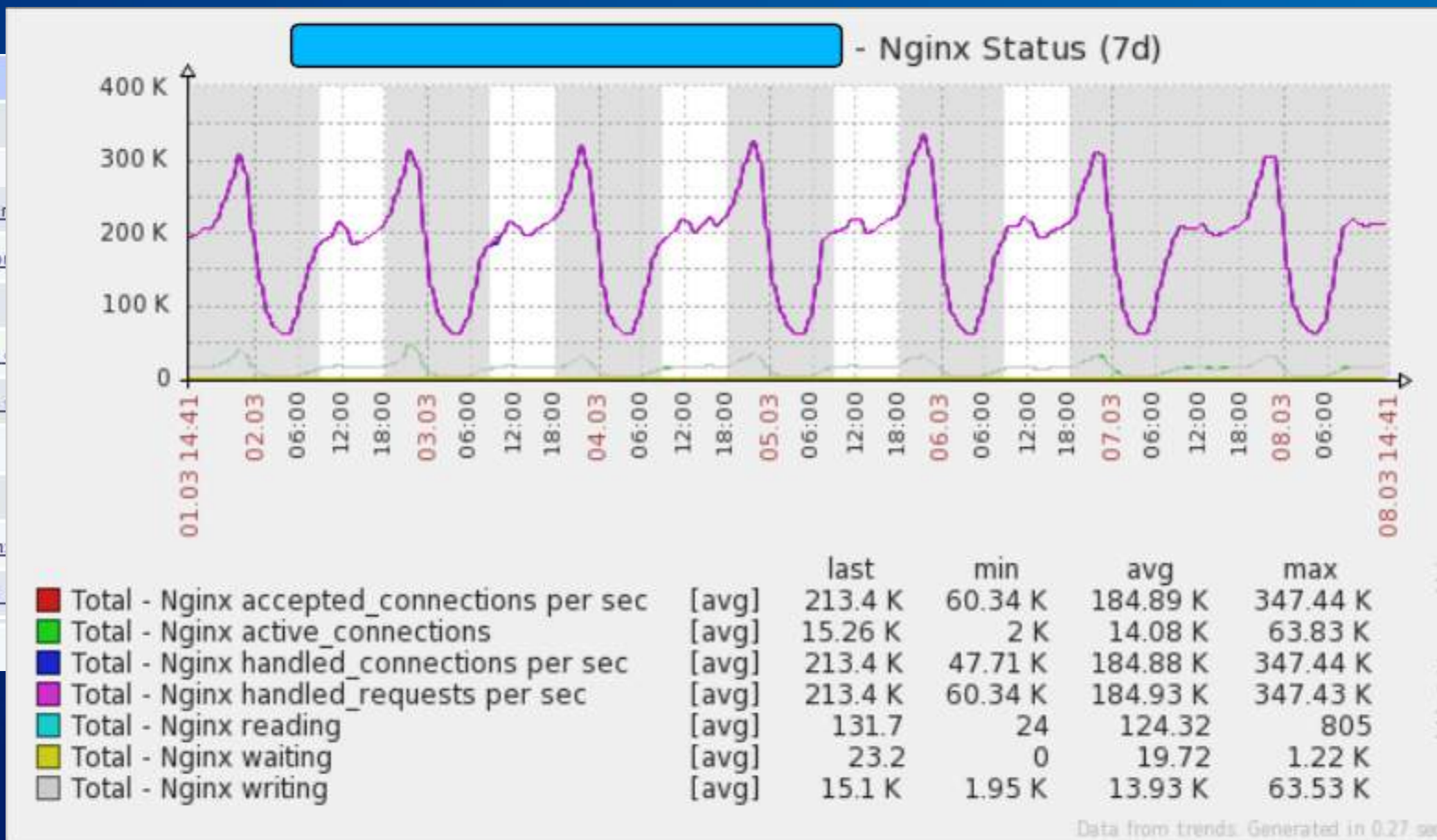
依赖服务监控

DB/Redis
Ext API
Internal API

04



Ops与监控



- [Nginx average r](#)
- [Nginx active co](#)
- [Nginx writing](#)
- [Nginx handled](#)
- [Nginx handled](#)
- [Nginx waiting](#)
- [Nginx reading](#)
- [Number of ngin](#)
- [Nginx accepted](#)

<http://www.zabbix.com>

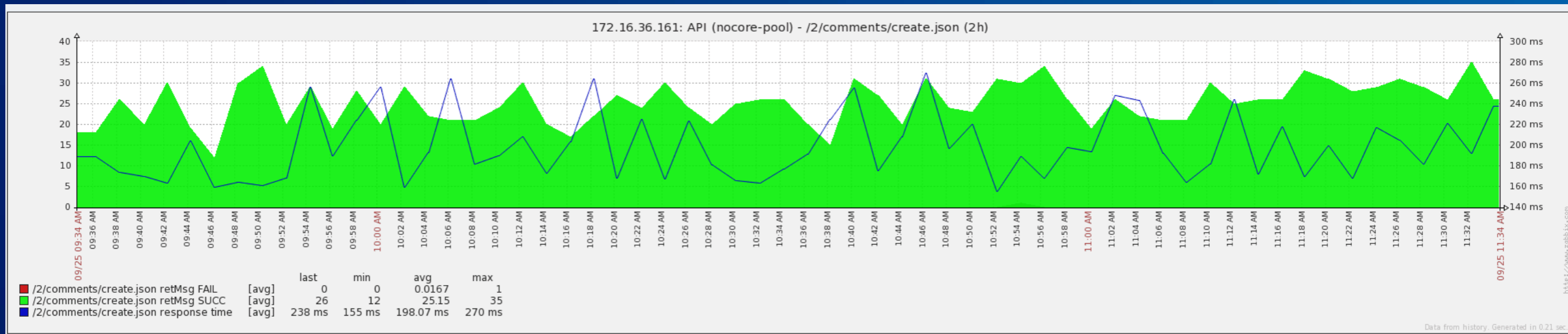
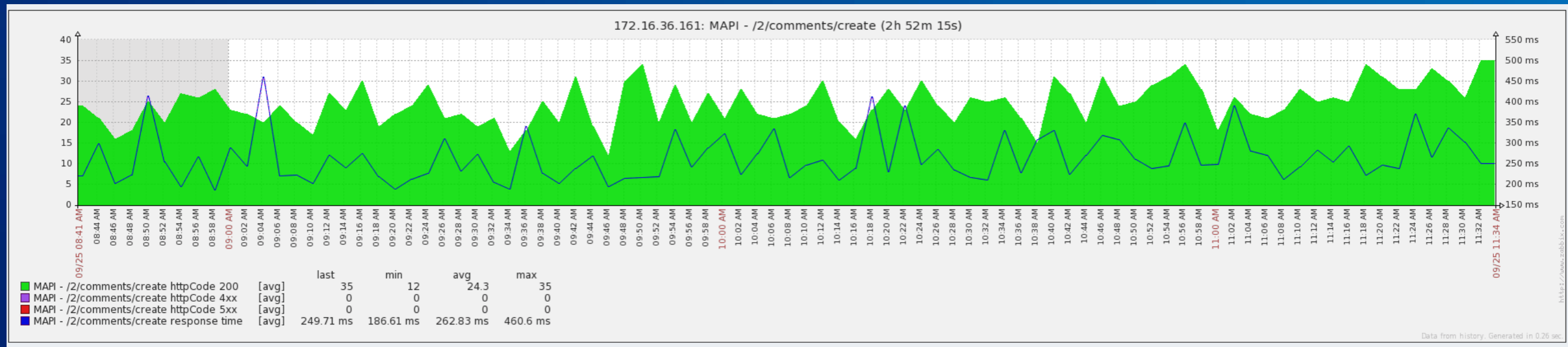
Ops与监控

业务监控

MAPI - /2/comments/create httpCode 4xx	mapi-2-comments-create-httpCode-400
MAPI - /2/comments/create httpCode 5xx	mapi-2-comments-create-httpCode-500
MAPI - /2/comments/create httpCode 200	mapi-2-comments-create-httpCode-200
MAPI - /2/comments/create response time	mapi-2-comments-create-responseTime
MAPI - /2/comments/create response time (200-500ms)	mapi-2-comments-create-200-500
MAPI - /2/comments/create response time (500-1000ms)	mapi-2-comments-create-500-1000
MAPI - /2/comments/create response time (1000-2000ms)	mapi-2-comments-create-1000-2000
MAPI - /2/comments/create response time (<=200ms)	mapi-2-comments-create-0-200
MAPI - /2/comments/create response time (>=2000ms)	mapi-2-comments-create-2000-999999

Ops与监控

业务监控



Ops与监控

业务监控

```
_source=2281287416|00*2355987961`36.7.95.5`13810453771`0`1052893010`3333_2001``  
[SUCC,0.0022,2015-05-19 23:00:00]/2/account/profile/education.json?source=3439264077&skip_check=0&spr=from%3A1052893010%3Bwm%3A3333_2001%3Bluicode%3A%3Buiicode%3A%3Bfid%3A%3Blfid%3A%3Bext%3A%3Bcardid%3A%3Blcardid%3A&uid=3165990602&appid=6&cip=122.245.55.174&proxy_source=3444457088|00*3165990602`122.245.55.174`13858142781`0`1052893010`3333_2001``  
[SUCC,0.1211,2015-05-19 23:00:00]/page/profile/toolbar.json?loginuid=1958258207&uid=1796160470&v_p=21&from=1053015010&lang=zh_CN|00*1958258207`59.57.192.84`11114a.3g`0`1053015010`9006_2001`8901_0068`  
[SUCC,0.1566,2015-05-19 23:00:00]/2/statuses/repost_timeline.json?source=3439264077&skip_check=0&spr=from%3A1052893010%3Bwm%3A3333_2001%3Bluicode%3A10000198%3Buiicode%3A10000002%3Bfid%3A%3Blfid%3A1076031259193624_-_WEIBO_SECOND_PROFILE_WEIBO%3Bext%3A%3Bcardid%3A%3Blcardid%3A1076031259193624_-_WEIBO_SECOND_PROFILE_WEIBO_-_3841678198322850&id=3841678198322850&page=1&featurecode=10000085&appid=6&cip=113.80.12.239&proxy_source=2281287416|00*3777162003`113.80.12.239`330474243@qq.com`0`1052893010`3333_2001``  
[FAIL,0.3004,2015-05-19 23:00:00]/2/remind/client_unread_count.json?source=3439264077&skip_check=0&spr=from%3A1052095010%3Bwm%3A2448_4002%3Bluicode%3A%3Buiicode%3A%3Bfid%3A%3Blfid%3A%3Bext%3A%3Bcardid%3A%3Blcardid%3A&user_id=2163469421&unread_message=1&trim_null=0&with_bilateral_status=0&feature=0&with_settings=1&with_chat_group_notice=1&with_common_attitude=1&with_common_cmt=1&with_reminding=1&need_back=9%2C12%2C13&ext_all=1&is_reset=1&remind_version=102&with_page_group=1&with_object_attitude=0&appid=6&cip=110.191.251.37&proxy_source=690818879|1040002*2163469421`110.191.251.37`13550947482`0`1052095010`2448_4002`2448_4002`  
[SUCC,0.0046,2015-05-19 23:00:00]/2/remind/client_unread_count.json?source=3439264077&skip_check=0&spr=from%3A1037299010%3Bwm%3A3333_6001%3Bluicode%3A%3Buiicode%3A%3Bfid%3A%3Blfid%3A%3Bext%3A%3Bcardid%3A%3Blcardid%3A&user_id=1605573341&unread_message=1&trim_null=0&with_bilateral_status=0&feature=0&with_chat_group_notice=1&with_common_attitude=1&with_common_cmt=1&with_reminding=1&need_back=9%2C12%2C13&with_object_attitude=0&appid=6&cip=118.247.200.190&proxy_source=2849184197|00*1605573341`118.247.200.190`simple_78_9wqly`0`1037299010`3333_6001``  
[SUCC,0.0573,2015-05-19 23:00:00]/2/likes/exist.json?source=3439264077&skip_check=0&spr=from%3A1037299010%3Bwm%3A3333_6001%3Bluicode%3A%3Buiicode%3A%3Bfid%3A%3Blfid%3A%3Bext%3A%3Bcardid%3A%3Blcardid%3A&object_id=1042018%3A0925effc074a7d8c3a4c71723042f7f3&uid=1133568877&appid=6&cip=49.113.37.217&proxy_source=867231157|00*1133568877`49.113.37.217`woshidanghui`0`1037299010`3333_6001``  
[SUCC,0.0056,2015-05-19 23:00:00]/2/notice_center/outer/push_settings.json?source=3439264077&skip_check=0&spr=from%3A1052095010%3Bwm%3A4209_8001%3Bluicode%3A%3Buiicode%3A%3Bfid%3A%3Blfid%3A%3Bext%3A%3Bcardid%3A%3Blcardid%3A&ua=Xiaomi-MI+2S__weibo__5.2.0__android__android4.1.1&appid=6&cip=101.228.198.243&proxy_source=4113602949|00*5031813472`101.228.198.243`773296756@q
```


Ops与监控

业务监控

- Plog

<https://github.com/CNSRE/Plog.git>

Plog 是 "Parse Log" 的缩写,是一套处理日志流的框架, 日志流格式可以是Apache, nginx等常规意义的日志格式, 也可以是自定义格式

```
[source]
source_module=read_from_pipeline
source_interval=5

[channel]
channel_module=regex_channel
channel_filter_regex="(.*)(.*)"(GET|POST) (?P<httpUri>(?:/[A-Za-z0-9$.+!*'(){}~,~:;=@#%_\-]*+)([\?\ \ ])(.*)^(.*)^(?P<httpCode>(?: (200|4\d\d|5\d\d)))^(.*)^(.*)^(.*)^(?P<re

[sink]
interval=60

sink_module=wwwlog
sink_service=wwwlog
#添加url需要添加的key:mapi-url-httpCode-200,mapi-url-httpCode-400,mapi-url-httpCode-500,mapi-url-0-200,mapi-url-200-500,mapi-url-500-1000,mapi-url-1000-2000,mapi-url-2000-999999,m
sink_zabbix_monitor_keys=mapi-2-cardlist-httpCode-200,mapi-2-cardlist-httpCode-400,mapi-2-cardlist-httpCode-500,mapi-2-cardlist-responseTime,mapi-2-client-addlog_batch-httpCode-200,mapi-

sink_zabbix_send_file=/dev/shm/zabbix_send_info
sink_appsar_send_file=/data1/v5.weibo.cn/data/appsar/
sink_zabbix_sender=/usr/bin/zabbix_sender
sink_zabbix_conf=/etc/zabbix/zabbix_agentd.conf

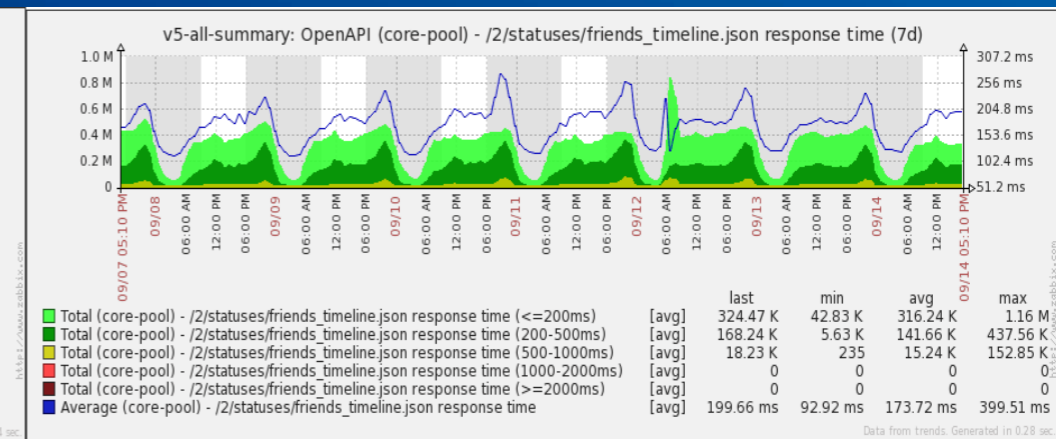
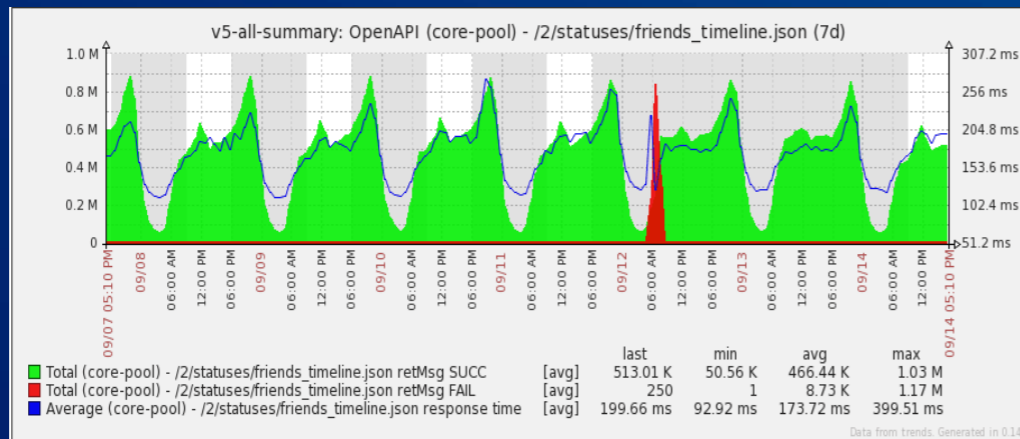
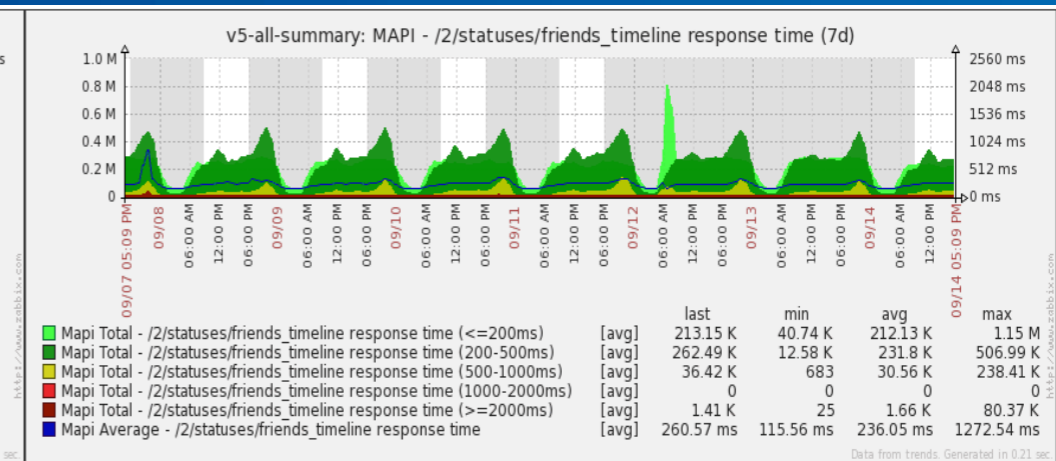
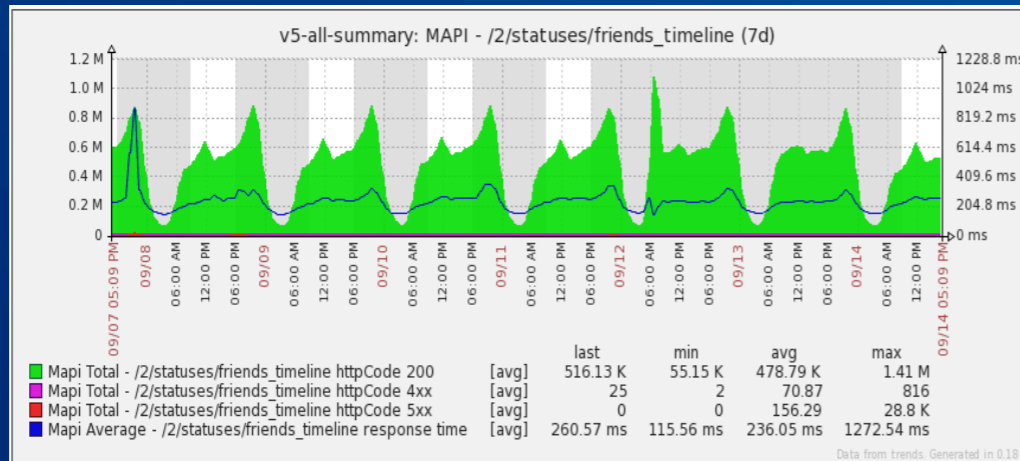
[log_config]
logging_format=%(asctime)s %(filename)s [funcname:%(funcName)s] [line:%(lineno)d] %(levelname)s %(message)s
logging_level=20
logging_filename=/tmp/plog_wwwlog.log
```


Ops与监控

- 数据汇总与展示汇总 (screen) :
 - 所有Nginx、所有 php-fpm、所有network、所有cpu (架构平面的汇总)
- IDC 逻辑 (逻辑出口、IDC物理)
- 调用逻辑 (APM)
 - 开放接口 → 内部接口 (N个接口)

Ops与监控

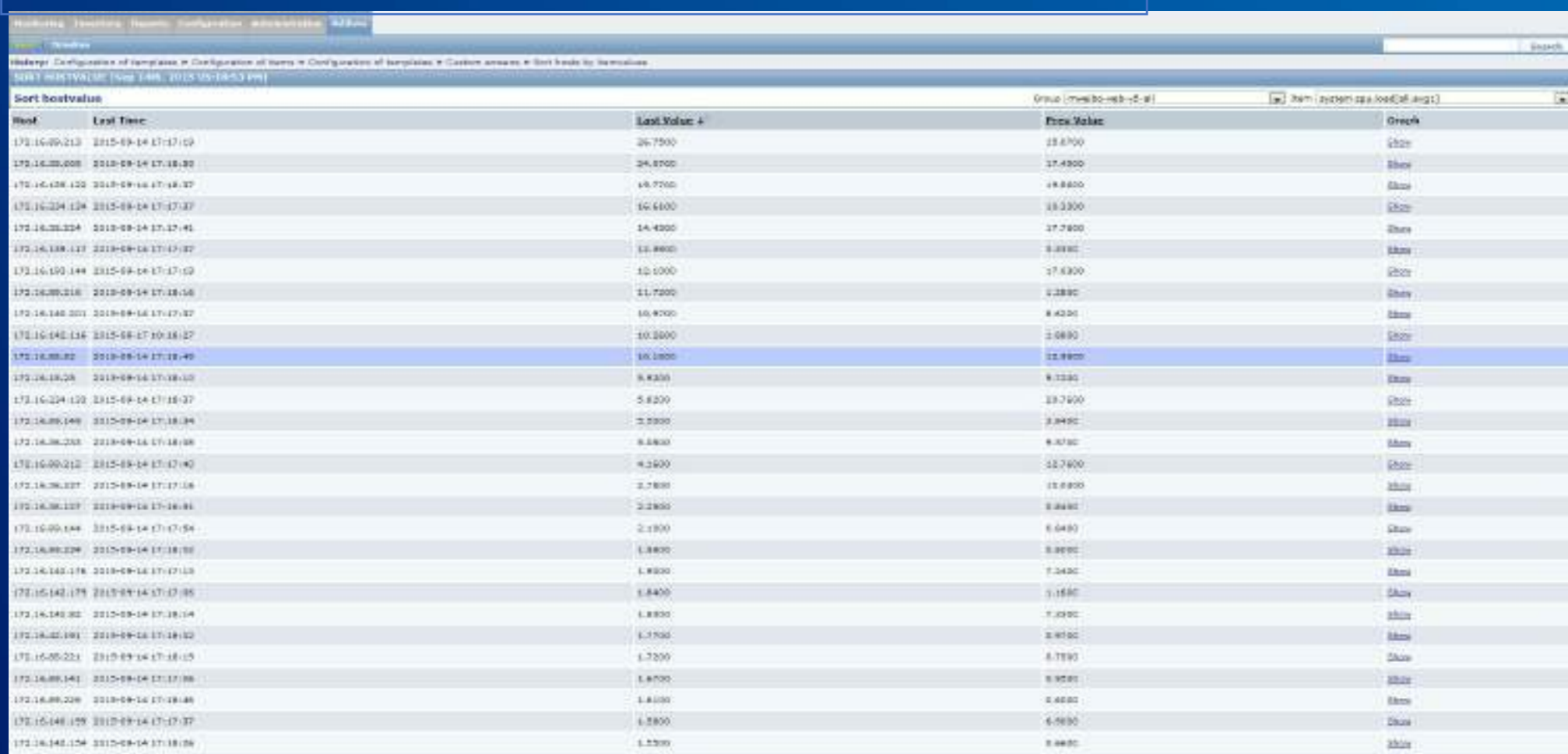
数据的展示—汇总



Ops与监控

发现最差的(Sort 插件)

<https://github.com/CNSRE/Zabbix-Plugin-Sort.git>



The screenshot shows the Zabbix monitoring interface with a table titled "Sort hostvalue". The table displays system load data for various hosts, sorted by the lowest value. The columns are: Host, Last Time, Last Value, Prev Value, and Graph. The data is sorted in descending order of the "Last Value" column, with the lowest values at the bottom.

Host	Last Time	Last Value	Prev Value	Graph
172.16.20.213	2015-09-14 17:17:09	26.7500	25.6700	Graph
172.16.20.208	2015-09-14 17:18:30	24.8700	27.4300	Graph
172.16.20.130	2015-09-14 17:18:37	18.7700	19.8600	Graph
172.16.204.124	2015-09-14 17:17:37	16.6100	15.2300	Graph
172.16.20.224	2015-09-14 17:17:41	14.4300	17.7800	Graph
172.16.138.117	2015-09-14 17:17:37	13.8800	8.3100	Graph
172.16.193.144	2015-09-14 17:17:09	12.1000	17.6300	Graph
172.16.20.216	2015-09-14 17:18:36	11.7500	5.2800	Graph
172.16.148.201	2015-09-14 17:17:37	10.9700	4.4200	Graph
172.16.142.134	2015-09-17 10:18:27	10.2000	2.0800	Graph
172.16.20.22	2015-09-14 17:18:40	10.1800	12.8800	Graph
172.16.18.28	2015-09-14 17:18:10	9.8200	9.1200	Graph
172.16.204.120	2015-09-14 17:18:37	5.8200	13.7400	Graph
172.16.89.149	2015-09-14 17:18:34	5.2900	3.0400	Graph
172.16.20.233	2015-09-14 17:18:38	5.8800	6.3700	Graph
172.16.20.212	2015-09-14 17:17:40	4.2900	22.7600	Graph
172.16.20.127	2015-09-14 17:17:08	2.7800	11.8900	Graph
172.16.20.127	2015-09-14 17:18:31	2.2800	3.8600	Graph
172.16.20.144	2015-09-14 17:17:54	2.1900	6.6400	Graph
172.16.20.226	2015-09-14 17:18:30	1.8800	3.8900	Graph
172.16.142.178	2015-09-14 17:17:13	1.8200	7.2400	Graph
172.16.142.179	2015-09-14 17:17:35	1.8400	3.1500	Graph
172.16.142.202	2015-09-14 17:18:04	1.8300	7.2300	Graph
172.16.20.191	2015-09-14 17:18:32	1.7500	3.9100	Graph
172.16.20.221	2015-09-14 17:18:05	1.7200	4.7100	Graph
172.16.89.141	2015-09-14 17:17:36	1.6700	3.9200	Graph
172.16.89.209	2015-09-14 17:18:36	1.6100	3.4800	Graph
172.16.142.129	2015-09-14 17:17:37	1.5800	4.5600	Graph
172.16.142.124	2015-09-14 17:18:36	1.2300	3.9800	Graph

Ops与监控

ELK 与监控

curl_getinfo

Change language:

Edit Report a Bug

["@version":1,"@timestamp":"2015-03-08T06:49:31.000Z","host":["127.0.0.1","web118.mweibo.tc.sinanode.com"],"type":"mweibo_weibinf_curl_debug","execute_status":"FAIL","execute_time":2.0016,"urlpath":"/v1/eps/managecenter/mobilecenter","error_code":"1040002","uid":"1648562377","ip":"123.120.171.212",...]

View: [Table](#) / [JSON](#) / [Raw](#)

Field	Action	Value
@timestamp		2015-03-08T06:49:31.000Z
@version		1
_id		ADv4JVeNFJ1IEpXMY15
_index		logstash-mweibo-2015.03.08
_type		mweibo_weibinf_curl_debug
certinfo		
connect_time		0.000808
curlCode		0
curlErrMsg		Operation timed out after 2000 milliseconds with 0 bytes received
download_content_length		-1
error_code		1040002
execute_status		FAIL
execute_time		2.0016
filetime		-1
from		1051293010
header_size		0
host		127.0.0.1,web118.mweibo.tc.sinanode.com
http_code		0
ip		123.120.171.212
logversion		0
namelookup_time		0.000217
pretransfer_time		0.000809
primary_ip		10.73.19.199
redirect_count		0
redirect_time		0
redirect_url		
request_size		131
size_download		0
size_upload		0
speed_download		0
speed_upload		0
ssl_verify_result		0
starttransfer_time		0
total_time		2.001580
type		mweibo_weibinf_curl_debug
uid		1648562377
upload_content_length		0
url_uid		1648562377
urlpath		/v1/eps/managecenter/mobilecenter
username		919855426@qq.com

(PHP 4 >= 4.0.4, PHP curl_getinfo – Ge

Description

[mixed curl_get](#)

Gets information a

Ops与监控

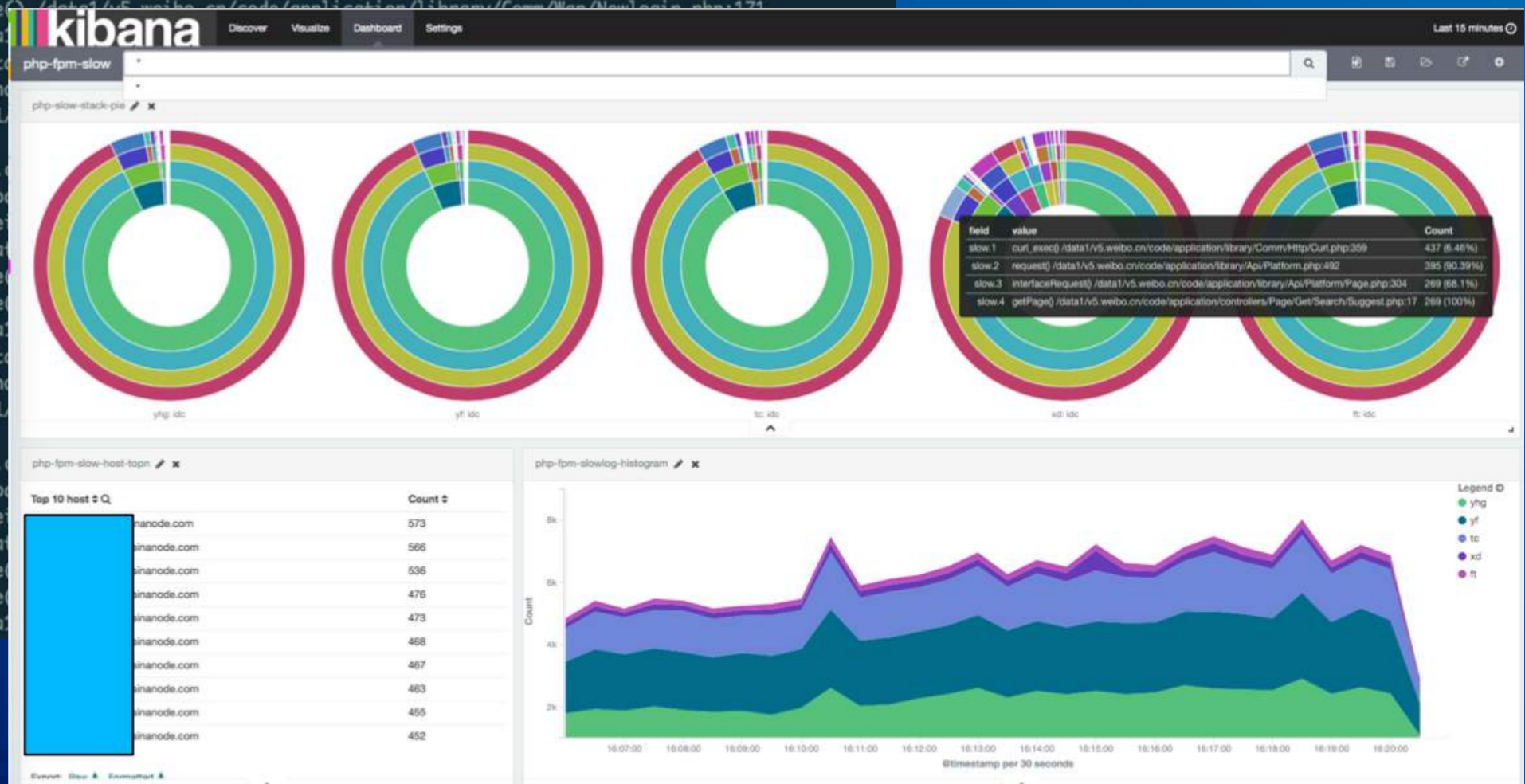
ELK 与监控

```

[19-May-2015 03:41:45] [pool v5.weibo.cn] pid 8499
script_filename = /data1/v5.weibo.cn/code/public/index.php
[0x00007ff141c453e8] set() /data1/v5.weibo.cn/code/application/library/Login/Mcq.php:54
[0x00007ff141c45240] addArrayData() /data1/v5.weibo.cn/code/application/library/Login/Cache.php:898
[0x00007ff141c450e8] writeToDeviceQueue() /data1/v5.weibo.cn/code/application/library/Login/Mobile.php:832
[0x00007ff141c44e78] writeToDeviceQueue() /data1/v5.weibo.cn/code/application/library/Comm/Http/NewLogin.php:171
[0x00007ff141c44d50] checkLogin() /data1/v5.weibo.cn/code/application/library/Comm/Http/Curl.php:359
[0x00007ff141c44c68] WapLoginLog() /data1/v5.weibo.cn/code/application/library/Api/Platform/Page.php:304
[0x00007fff72d6a130] _initConfig() unknown
[0x00007ff141c44b58] bootstrap() /data1/v5.weibo.cn/code/application/library/Comm/Http/Curl.php:359

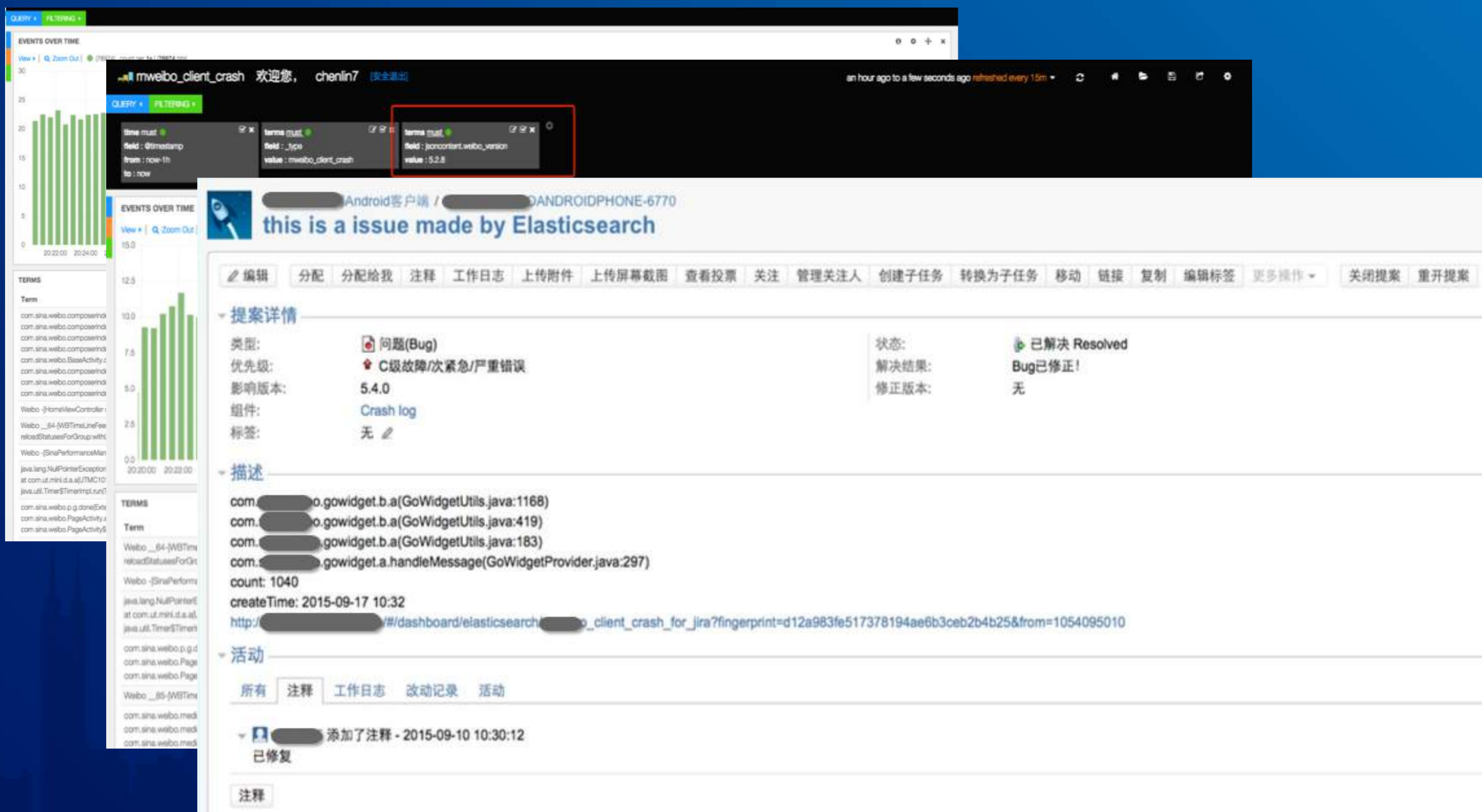
[19-May-2015 03:42:06] [pool v5.weibo.cn] pid 8499
script_filename = /data1/v5.weibo.cn/code/public/index.php
[0x00007ff141c453e8] set() /data1/v5.weibo.cn/code/application/library/Login/Mcq.php:54
[0x00007ff141c45240] addArrayData() /data1/v5.weibo.cn/code/application/library/Login/Cache.php:898
[0x00007ff141c450e8] writeToDeviceQueue() /data1/v5.weibo.cn/code/application/library/Login/Mobile.php:832
[0x00007ff141c44e78] writeToDeviceQueue() /data1/v5.weibo.cn/code/application/library/Comm/Http/NewLogin.php:171
[0x00007ff141c44d50] checkLogin() /data1/v5.weibo.cn/code/application/library/Comm/Http/Curl.php:359
[0x00007ff141c44c68] WapLoginLog() /data1/v5.weibo.cn/code/application/library/Api/Platform/Page.php:304
[0x00007fff72d6a130] _initConfig() unknown
[0x00007ff141c44b58] bootstrap() /data1/v5.weibo.cn/code/application/library/Comm/Http/Curl.php:359

[19-May-2015 03:42:27] [pool v5.weibo.cn] pid 8499
script_filename = /data1/v5.weibo.cn/code/public/index.php
[0x00007ff141c45458] set() /data1/v5.weibo.cn/code/application/library/Login/Mcq.php:54
[0x00007ff141c452b0] addArrayData() /data1/v5.weibo.cn/code/application/library/Login/Cache.php:898
[0x00007ff141c45158] writeToDeviceQueue() /data1/v5.weibo.cn/code/application/library/Login/Mobile.php:832
[0x00007ff141c44ee8] writeToDeviceQueue() /data1/v5.weibo.cn/code/application/library/Comm/Http/NewLogin.php:171
[0x00007ff141c44dc0] checkLogin() /data1/v5.weibo.cn/code/application/library/Comm/Http/Curl.php:359
  
```



Ops与监控

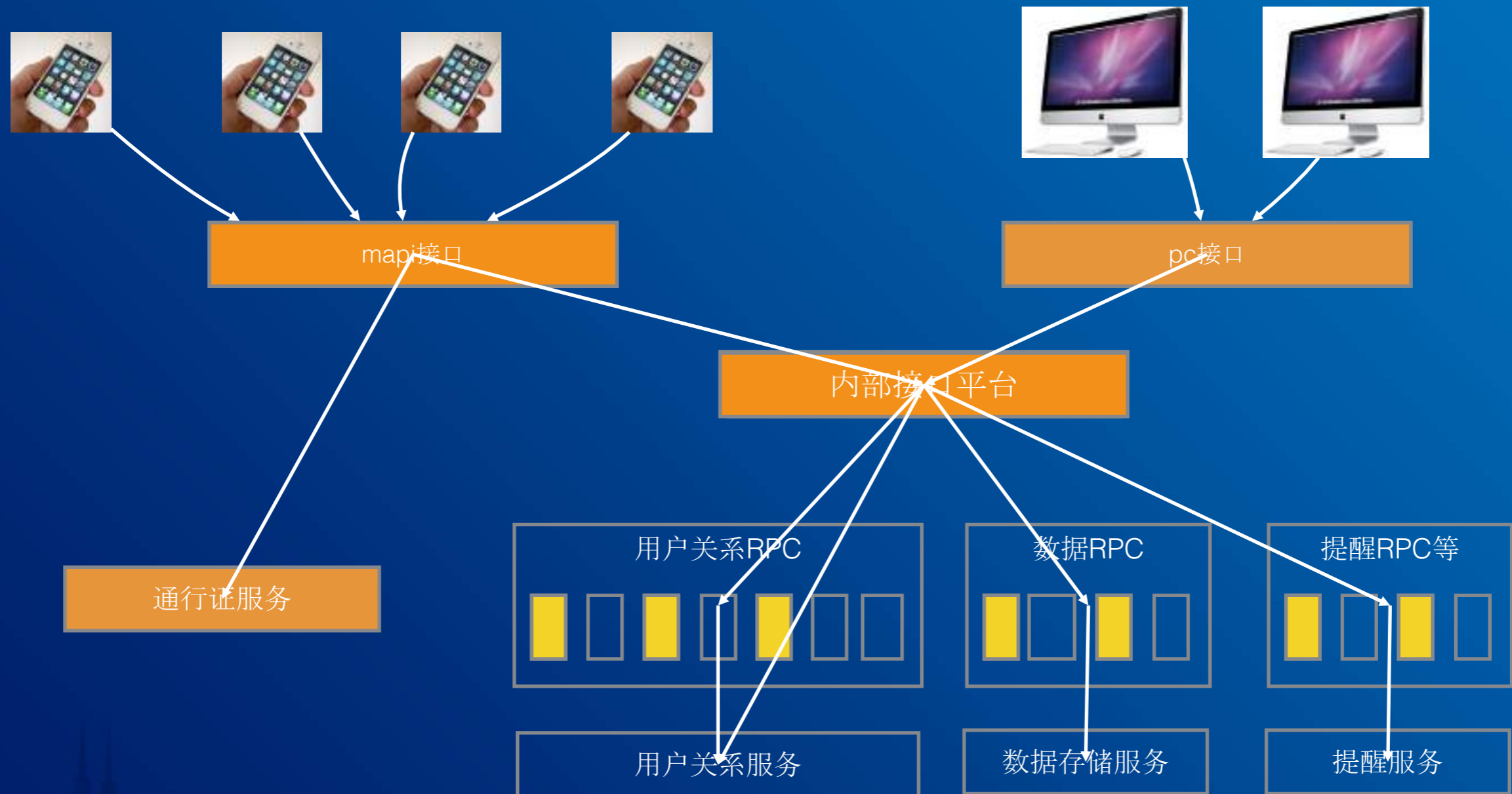
ELK 与监控



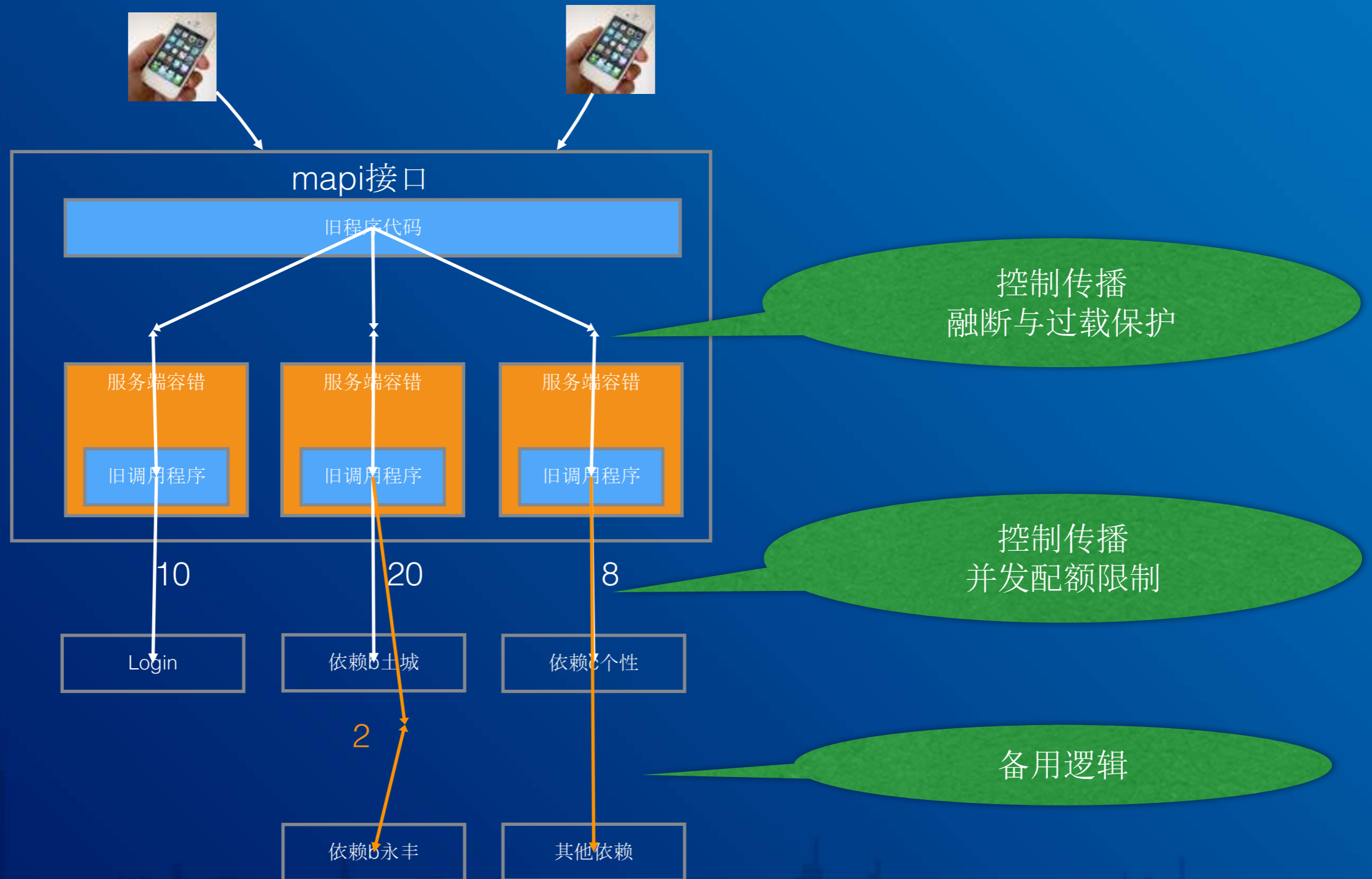
The screenshot displays an ElasticSearch dashboard interface. At the top, a navigation bar shows the user 'chenlin7' and the current time 'an hour ago to a few seconds ago'. The main content area is divided into several sections:

- EVENTS OVER TIME:** A bar chart showing the frequency of events over time, with a peak around 20:22:00.
- TERMS:** A list of terms related to the events, including package names like 'com.sina.weibo.composeind' and 'WebviewController'.
- Filtering:** A search bar with filters for 'time must' (field: @timestamp, from: now-1h, to: now) and 'terms must' (field: _type, value: mweibo_client_crash).
- Issue Details:** A detailed view of a specific issue titled 'this is a issue made by Elasticsearch'. It includes:
 - 类型:** 问题(Bug)
 - 优先级:** C级故障/次紧急/严重错误
 - 影响版本:** 5.4.0
 - 组件:** Crash log
 - 状态:** 已解决 Resolved
 - 解决结果:** Bug已修正!
 - 修正版本:** 无
- 描述:** A list of stack trace entries from the crash log, such as 'com.sina.weibo.gowidget.b.a(GoWidgetUtils.java:1168)'.
- 活动:** A section for activity logs, showing a note: '添加了注释 - 2015-09-10 10:30:12 已修复'.

Ops与架构

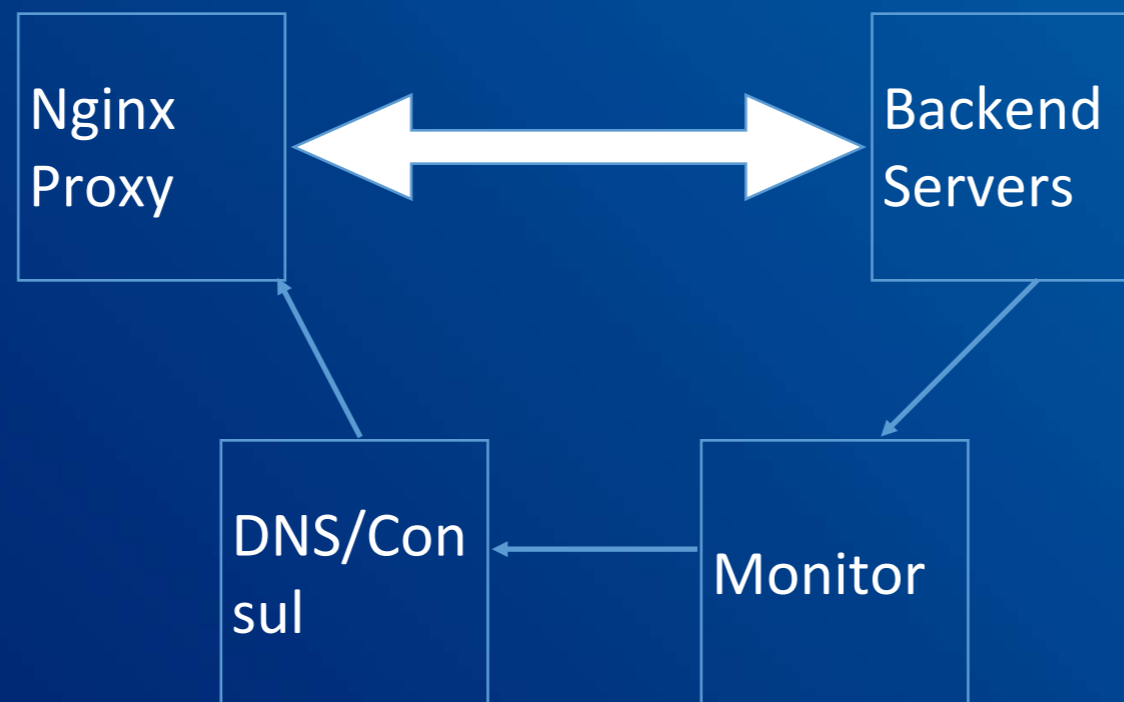


Ops与架构



架构与自动化

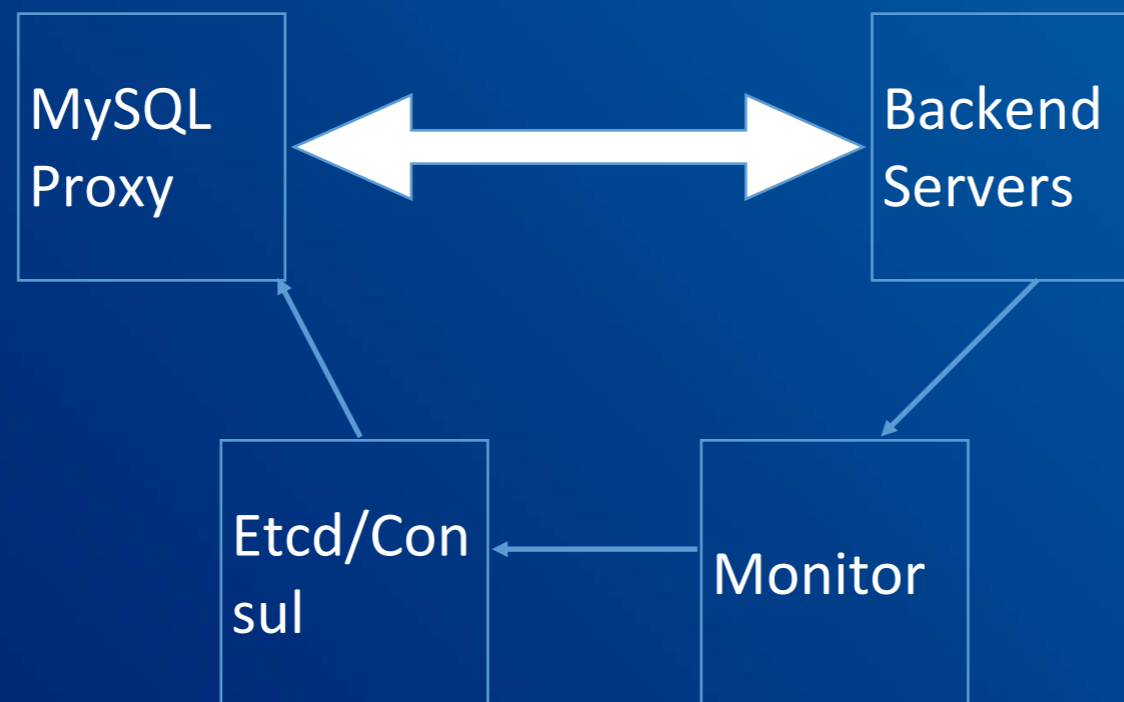
架构的自动化



nginx_http_dyups_module/nginx_lua_upstream_module
confd+templated

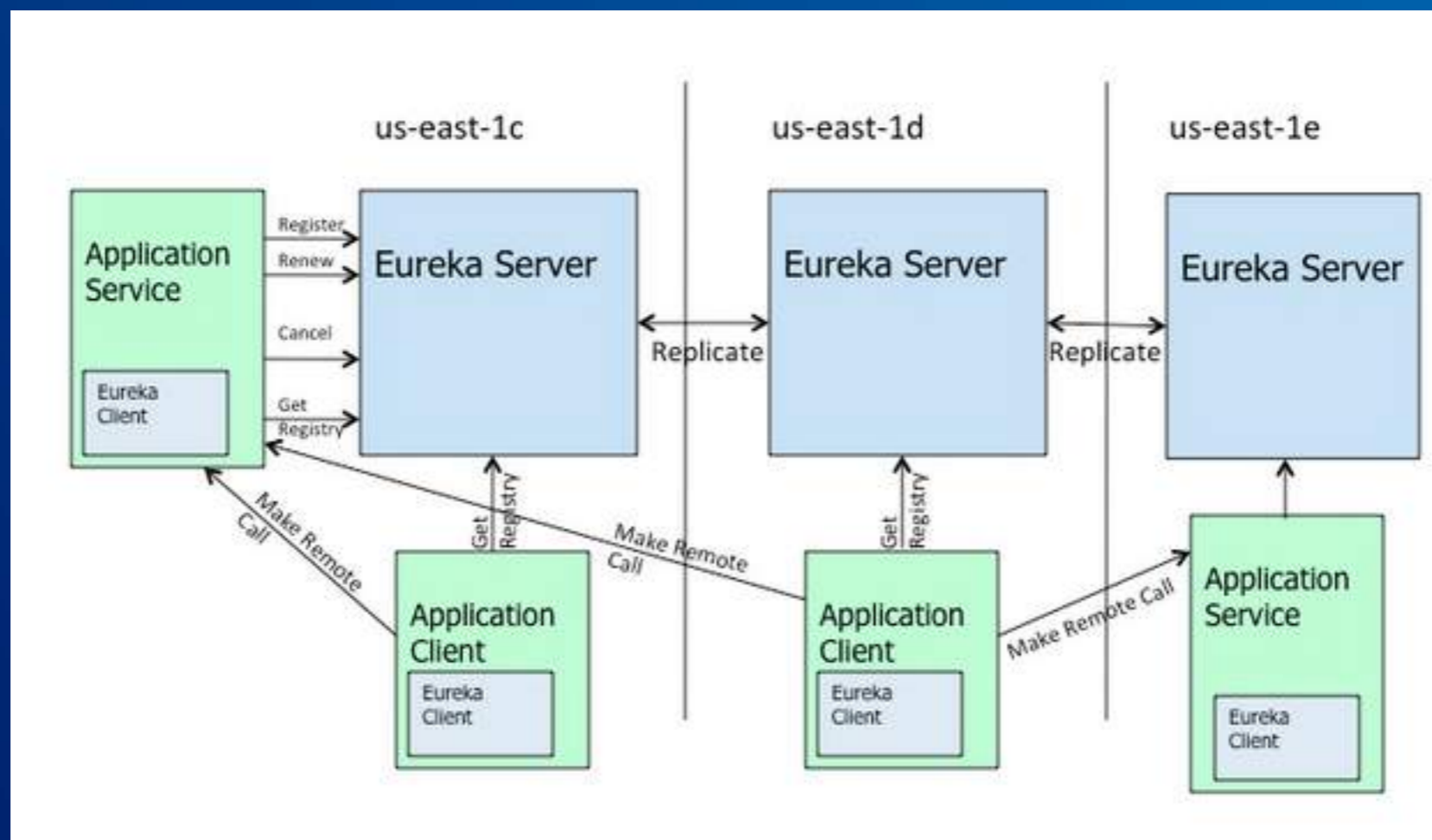
架构与自动化

架构的自动化



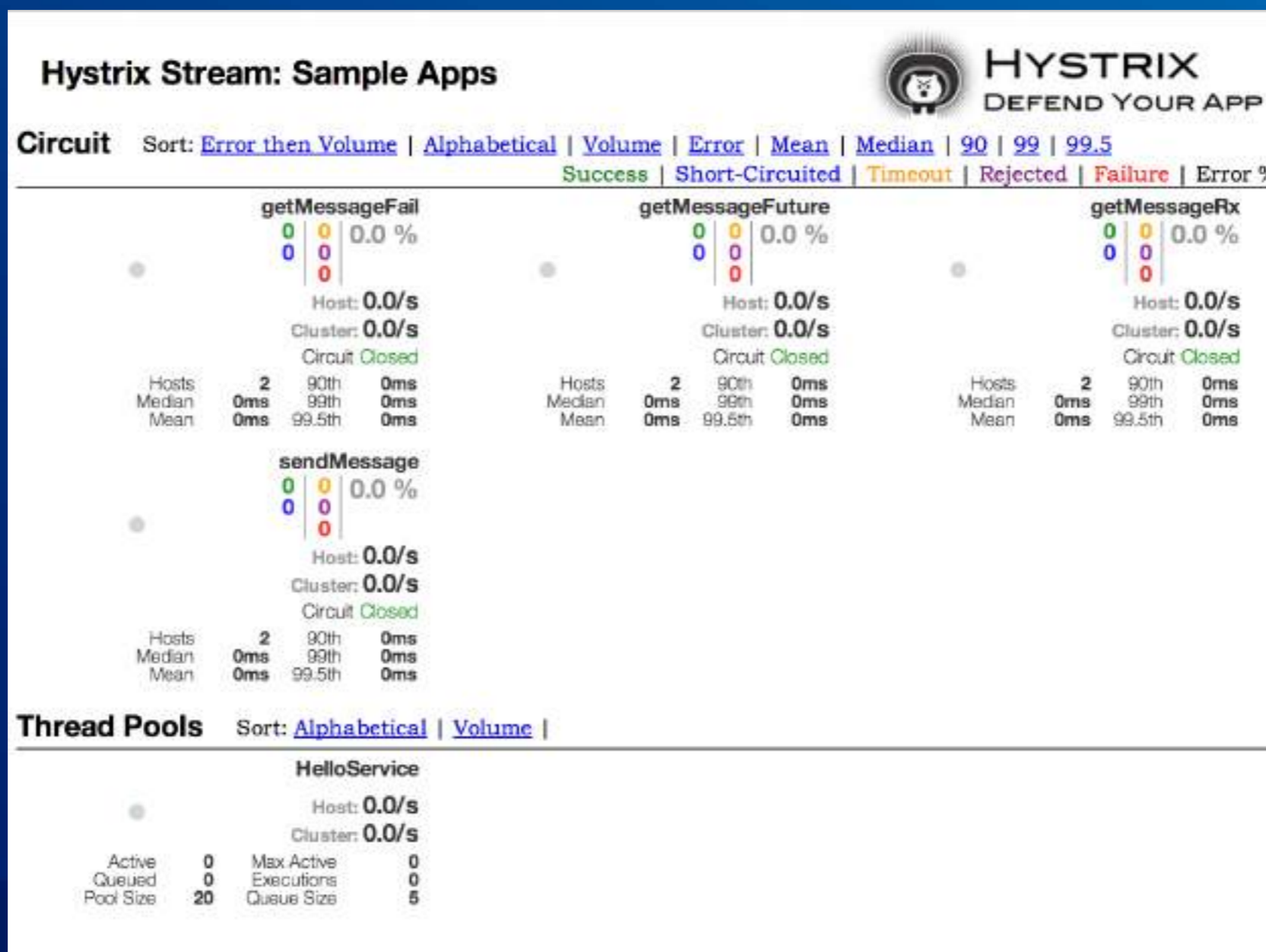
架构与自动化

Hystrix的自动化架构



架构与自动化

Hystrix 的监控



架构与自动化

架构与容量几乎是一切技术运营问题的根源
在生产环境中，架构的高可用、容错性比性能更有重要

Hystrix的设计哲学：

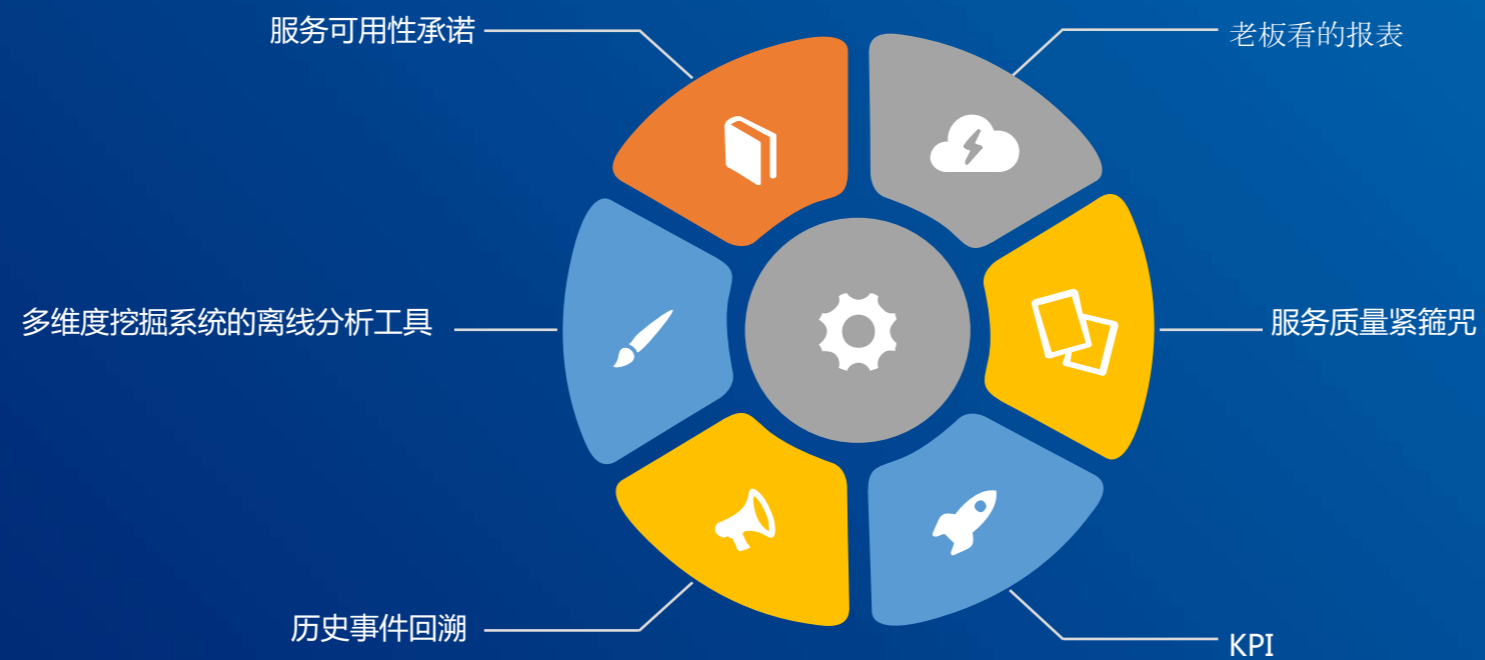
- 1.用快速减负和快速失败的方式来替代队列.
- 2.提供可行的备用方式来让用户访问成功.
- 3.使用隔离机制来限制由依赖带来的影响.
- 4.优化接近实时的度量点、监控、报警等方式实现实时的服务发现
- 5.实时的服务发现机制，依赖于低延迟的配置变更以及动态的属性设置，可以快速的实施变更并快速的获得变更反馈.

架构与自动化

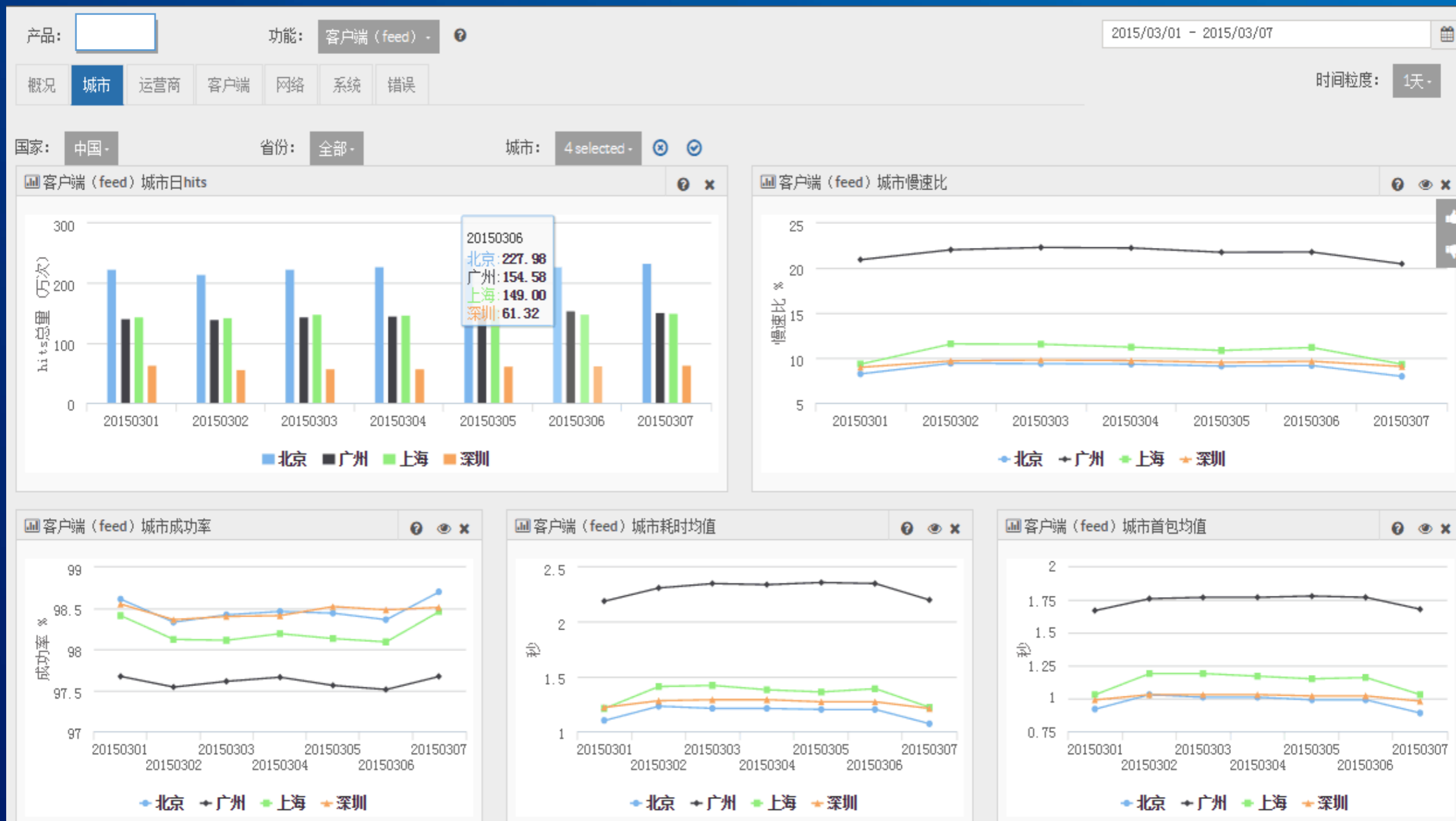
Hystrix的践行方案：

- 1.将超过预定阈值的请求进行超时处理.
- 2.对每一个依赖提供一个小的线程池，如果池子满了，那么调用这个池子的请求就会被快速的拒绝，而不是进入队列.
- 3.统计成功、失败、超时等数据.
- 4.优化接近实时的度量点、监控、报警等方式实现实时的服务发现
- 5.实时的服务发现机制，依赖于低延迟的配置变更以及动态的属性设置，可以快速的实施变更并快速的获得变更反馈.

Ops与SLA



Ops与SLA



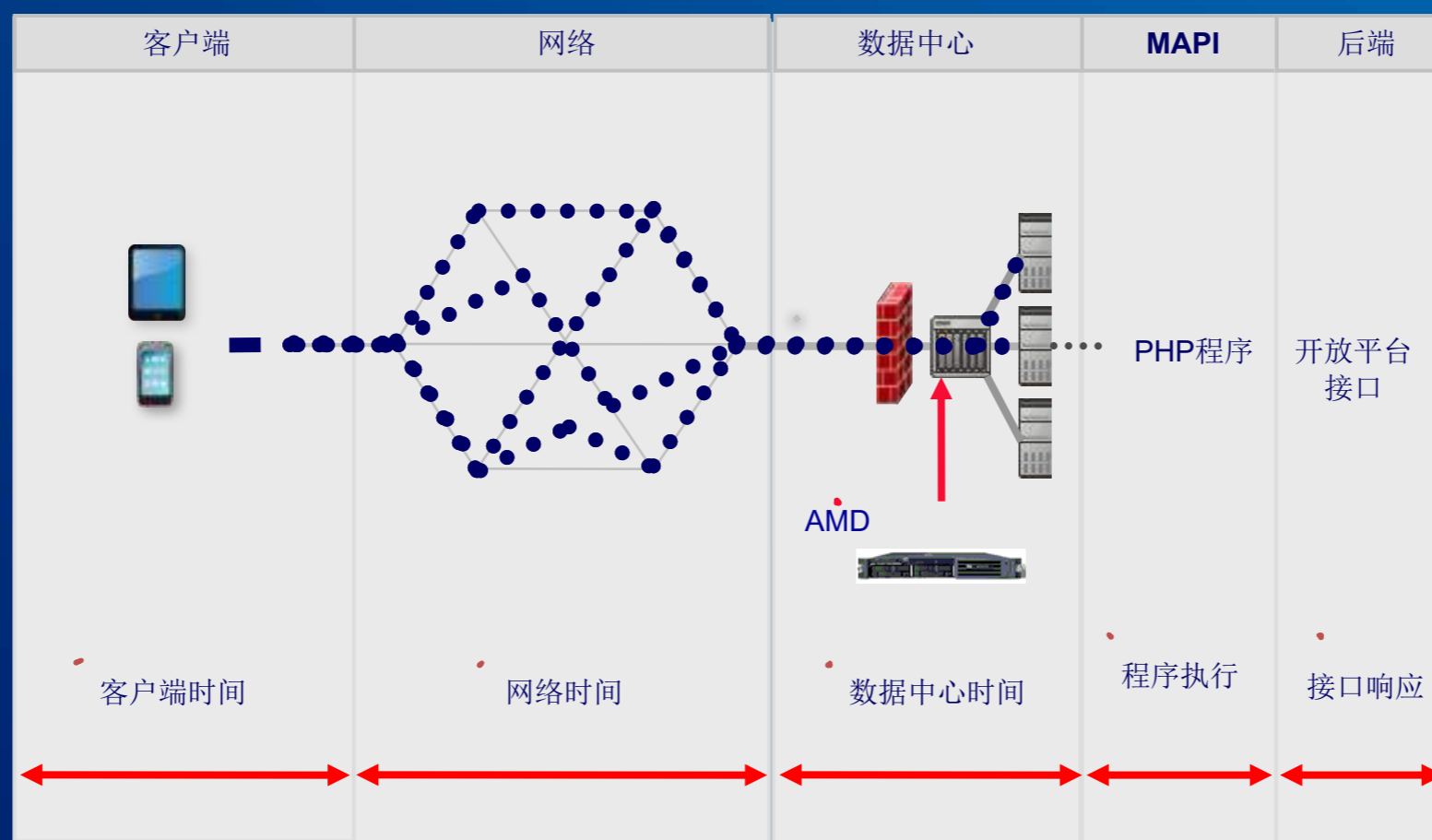
Ops与SLA

- 除核心服务质量指标外，能否？
 - 多维度评估
 - 全业务链
 - 聚焦异常、性能突变
 - 助力问题定位
- 从而，让运维工程师也喜欢上它？

Ops与SLA



Ops与SLA



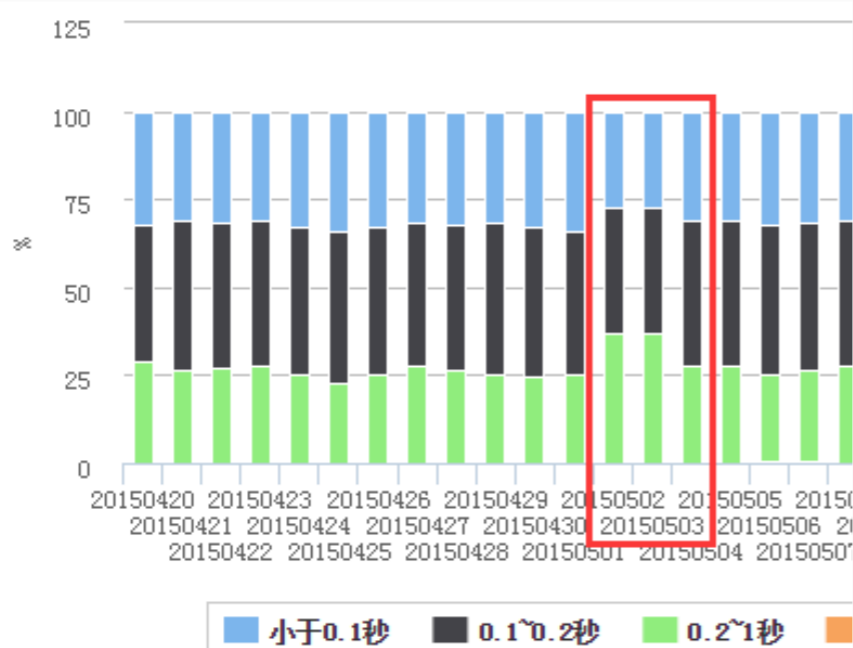
Ops与SLA

5.2日 手机微博MAPI_feed接口慢速比增加 10%

前端WebInfo慢速比趋势



前端WebInfo响应时间趋势

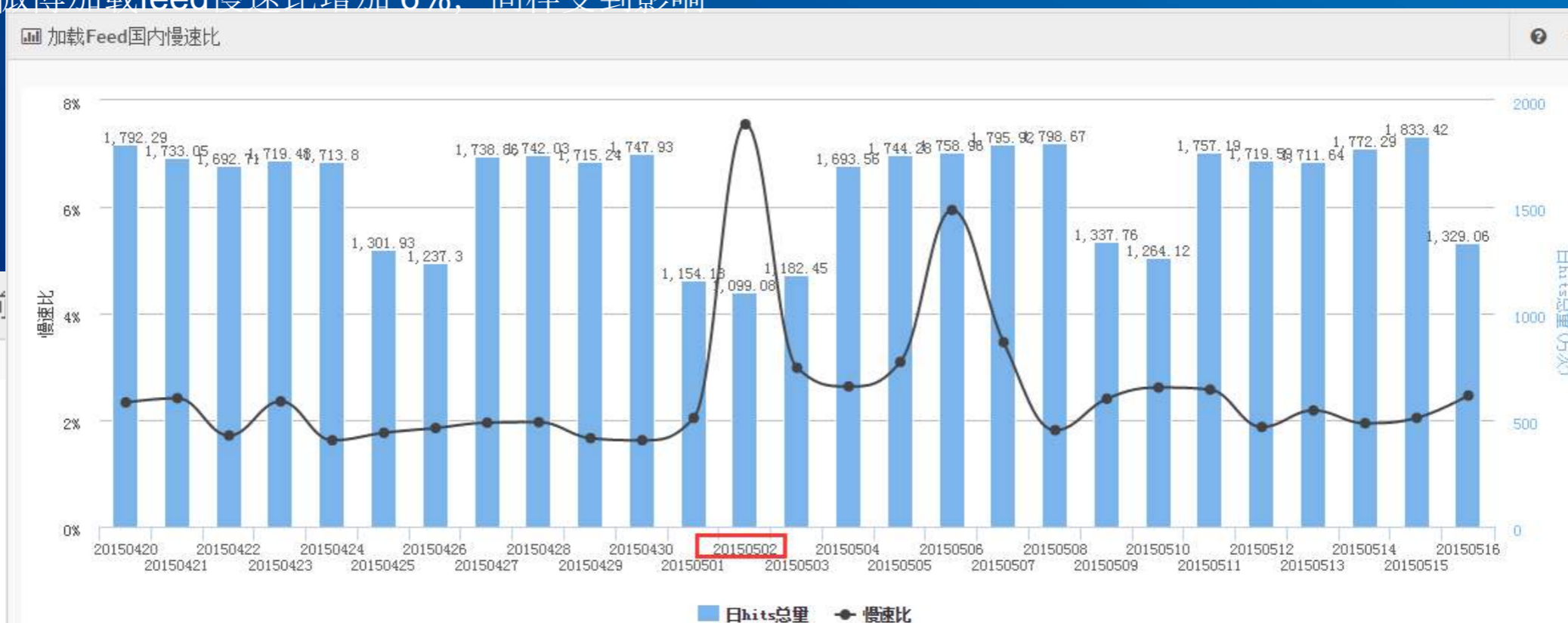


前端WebInfo响应时间趋势



Ops与SLA

5.2日 PC微博加载feed慢速比增加6%，同样受到影响



■ 小于0.1秒
 ■ 0.1~0.2秒
 ■ 0.2~1秒
 ■ 大于1秒