

# Feedback loops

Jason 邸富杰

IBM CIO DevOps Coach

# QCon

## 全球软件开发大会

10月17-19日 上海·宝华万豪酒店



扫码锁定席位

### 九折即将结束

团购还享更多优惠，折扣有效期至9月17日

扫描右方二维码即可查看大会信息及购票



如果在使用过程中遇到任何问题，可联系大会主办方，欢迎咨询！

微信：qcon-0410

电话：010-84782011

# ArchSummit

## 全球架构师峰会 2017



扫码锁定席位

12月8-9日 北京·国际会议中心

### 七折即将截止立省2040元

使用限时优惠码AS200，

以目前最优惠价格报名ArchSummit

仅限前20名用户，优惠码有效期至9月19日，

扫描右方二维码即可使用



如果在使用过程中遇到任何问题，可联系大会主办方，欢迎咨询！

微信：aschina666

电话：15201647919

# 极客搜索

全站干货，一键触达，只为技术

s.geekbang.org



扫描二维码立即体验

有没有一种搜索方式，能整合 InfoQ 中文站、极客邦科技旗下12大微信公众号矩阵的全部资源？

极客搜索，这款针对极客邦科技全站内容资源的轻量级搜索引擎，做到了！

扫描上方二维码，极客搜索！

# 这里只有 技术领导者

## EGO会员第二季招募季正式开启



E小欧

报名时间：9月1日-9月15日  
扫描添加E小欧，  
邀您进入EGO会员预报名群

立即报名





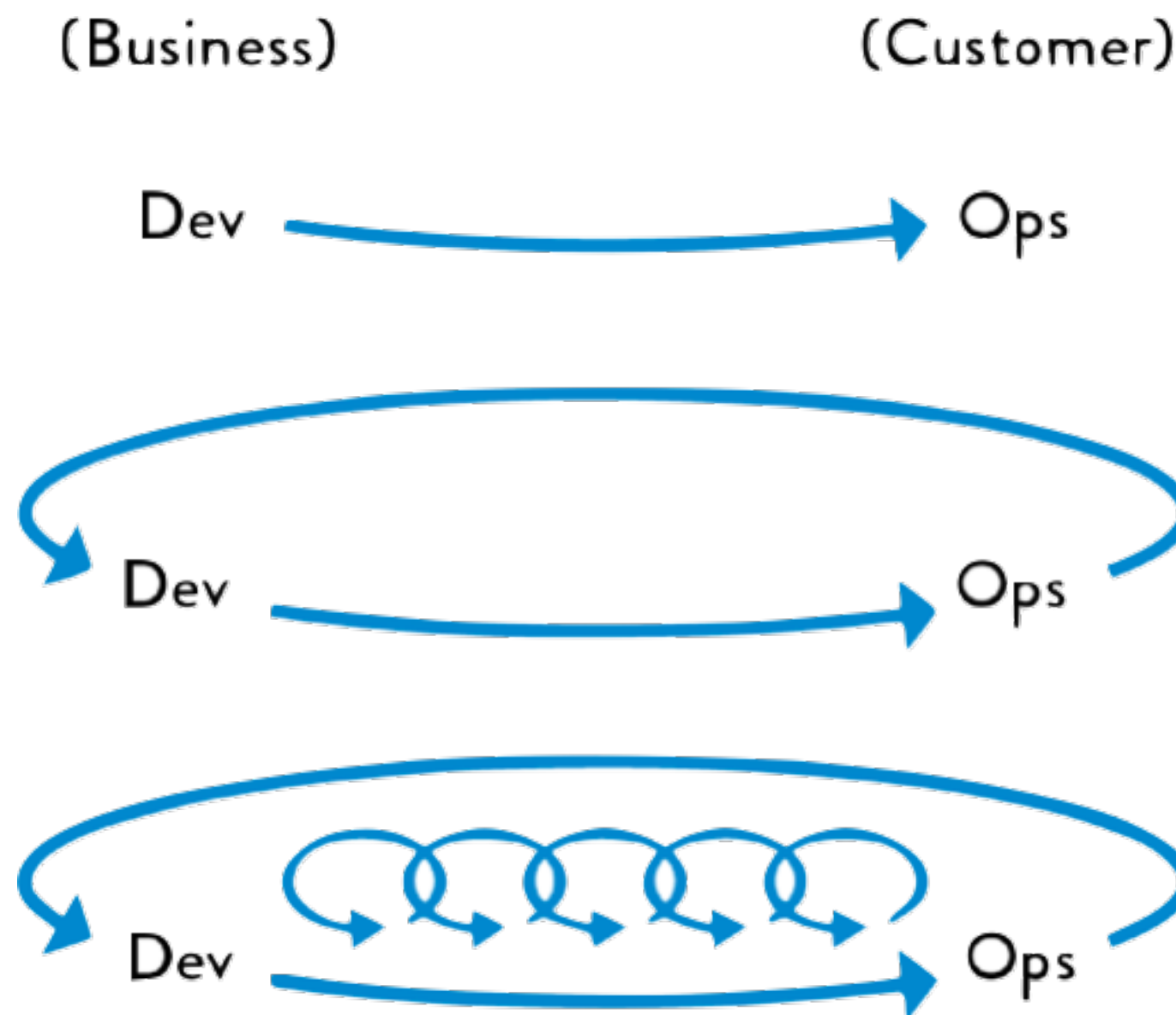
# 自我介绍



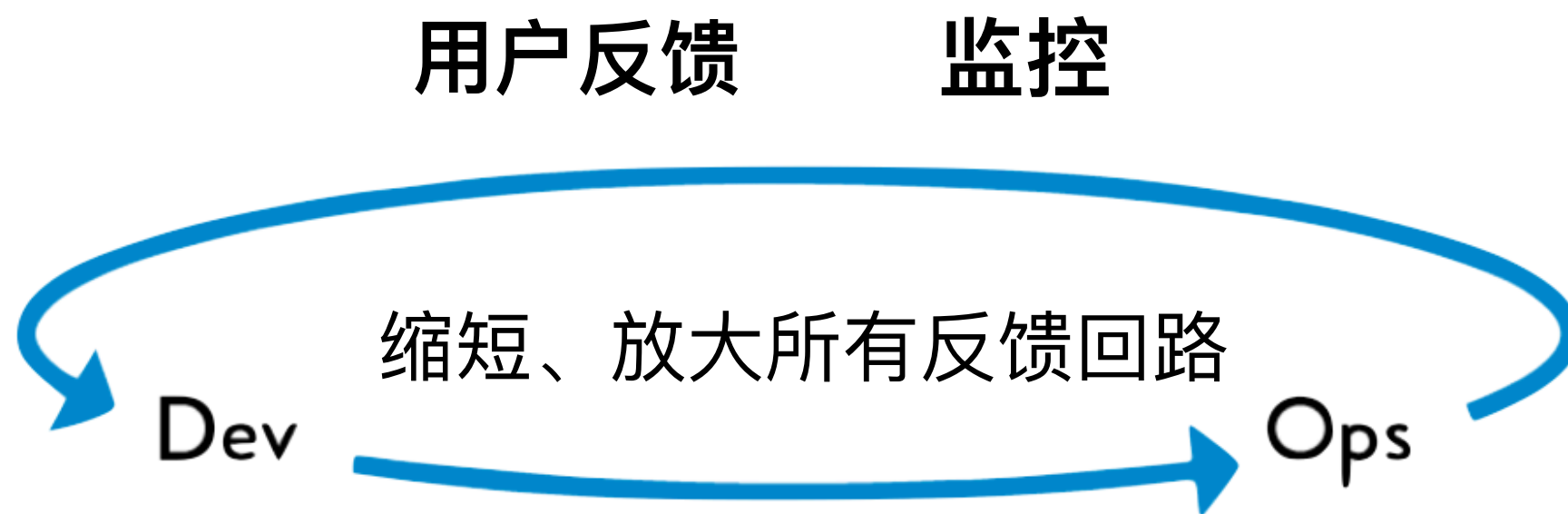
DevOps专家  
专注于自动化运维和持续交付  
10年敏捷开发及指导经验



# DevOps三步工作法



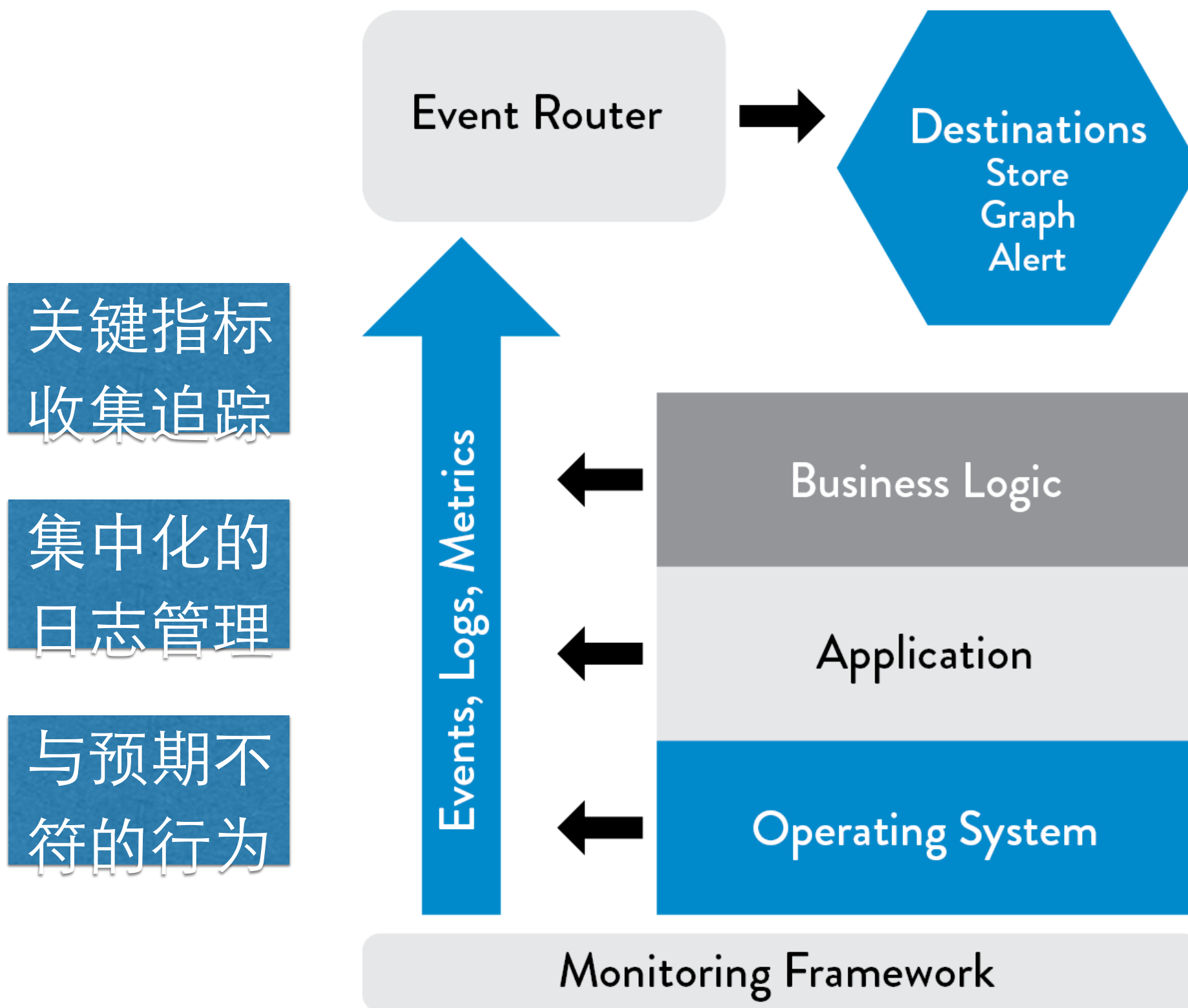
# DevOps第二工作法



# 监控什么？







Source: Turnbull, *The Art of Monitoring*, Kindle edition, chap. 2.

# 案例分享



# 困扰

Cron job是否  
正常运转

邮件爆炸



监控脚本  
散落在四处

无法收集历史信息  
用来预警与RCA

不能很好的  
提供日志信息

# 报警



解决：邮件轰炸，报警优先级，self-monitoring



# Pagerduty



**pagerduty** Dashboard Incidents Configuration Analytics ? My Teams

## Dashboard

Your open incidents  
0 triggered 1 acknowledged

All open incidents  
0 triggered 1 acknowledged

## Incidents

Open 1 Triggered 0 Acknowledged 1 Resolved 2557 Any Status 2558 Assigned to me All

Selected Incidents: Resolve Acknowledge Reassign Go to Incident #:

<input type="checkbox"/>	#	Created On	Details	Service	Assigned To	Status	
<input type="checkbox"/>	32521	Apr 14, 2015 at 2:54 PM	Slow performance on Web Server	New Relic	Dave	Acknowledged	Details
<input type="checkbox"/>	32519	Apr 14, 2015 at 2:01 PM	Low Appdex on DB Server	New Relic	--	Resolved	Details
<input type="checkbox"/>	32518	Apr 14, 2015 at 1:40 PM	A triggered incident	Enterprise performance	--	Resolved	Details
<input type="checkbox"/>	32517	Apr 14, 2015 at 1:10 PM	A triggered incident	Enterprise performance	--	Resolved	Details
<input type="checkbox"/>	32514	Apr 14, 2015 at 12:44 PM	Slow performance on Web Server	New Relic	--	Resolved	Details
<input type="checkbox"/>	32512	Apr 14, 2015 at 12:19 PM	Low Appdex on Web Server	New Relic	--	Resolved	Details
<input type="checkbox"/>	32511	Apr 14, 2015 at 12:18 PM	High Load on Web Server	New Relic	--	Resolved	Details
<input type="checkbox"/>	32510	Apr 14, 2015 at 12:01 PM	A triggered incident	logic monitor stuff	--	Resolved	Details
<input type="checkbox"/>	32509	Apr 14, 2015 at 11:59 AM	A triggered incident	Nagios	--	Resolved	Details

### MY TEAMS

My Teams

Ops Team

All Eng

NOC responders

### ALL TEAMS

All Teams

All Eng

Level 3:

### Who is on-call now?

↑ All Eng

Level 1: John Smith  
Apr 14, 2015 at 12:00 AM - Apr 15, 2015 at 12:00 AM

Level 2: John Smith  
on-call all the time

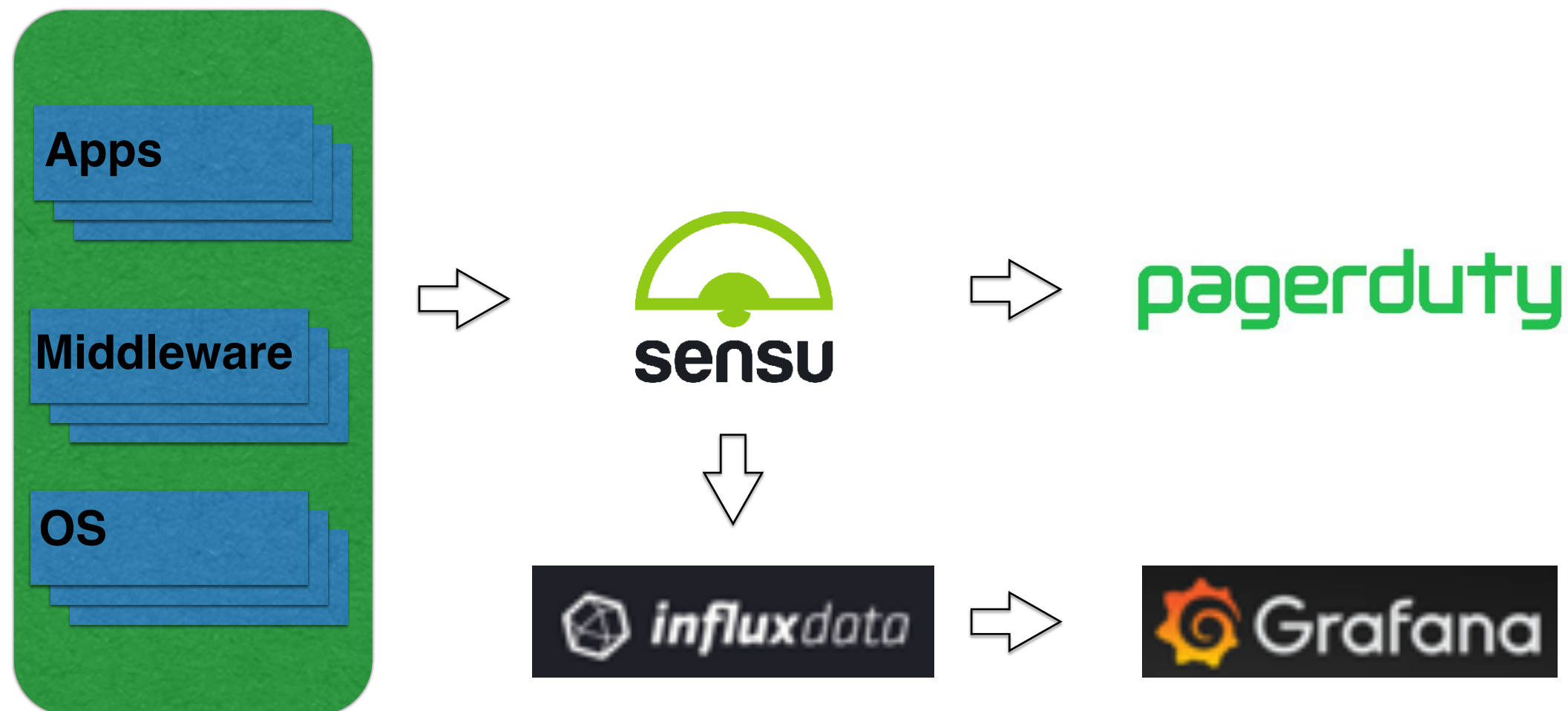
Level 3: Dave  
on-call all the time

↑ Default

Level 1: Dave  
Apr 14, 2015 at 9:00 AM - Apr 14, 2015 at 12:00 AM

### Resources

# Events & Metrics

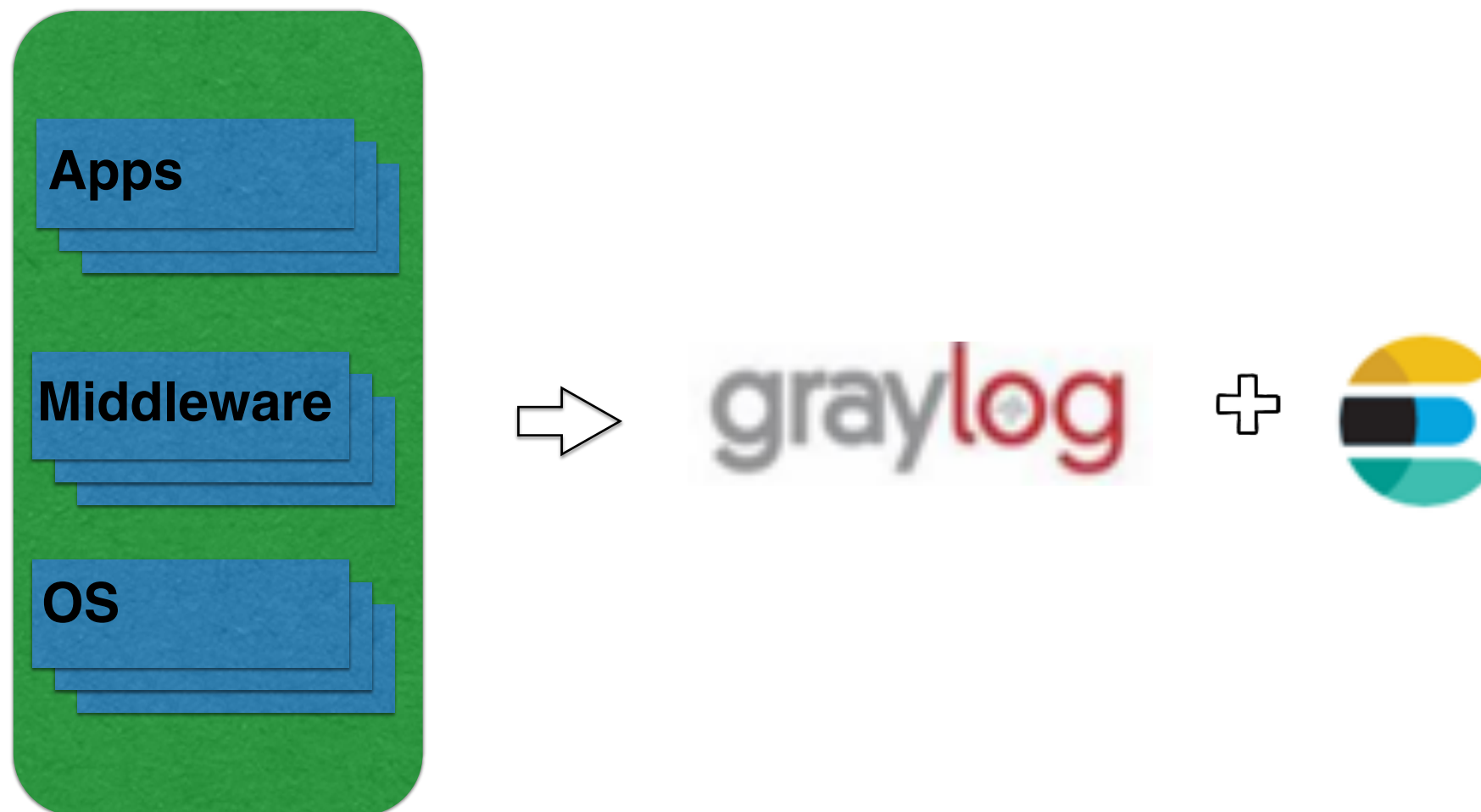


解决：可追述与可视化

# Grafana dashboard



# Logs



解决：日志集中收集，集中管理





## Audit Log

Graylog Audit Log lets you create a chronological record of activities performed in Graylog, that you can later use to reconstruct and examine the sequence of events that occurred when investigating an event.

[Show Audit Log configuration](#)[Audit Log documentation](#)

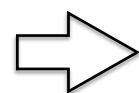
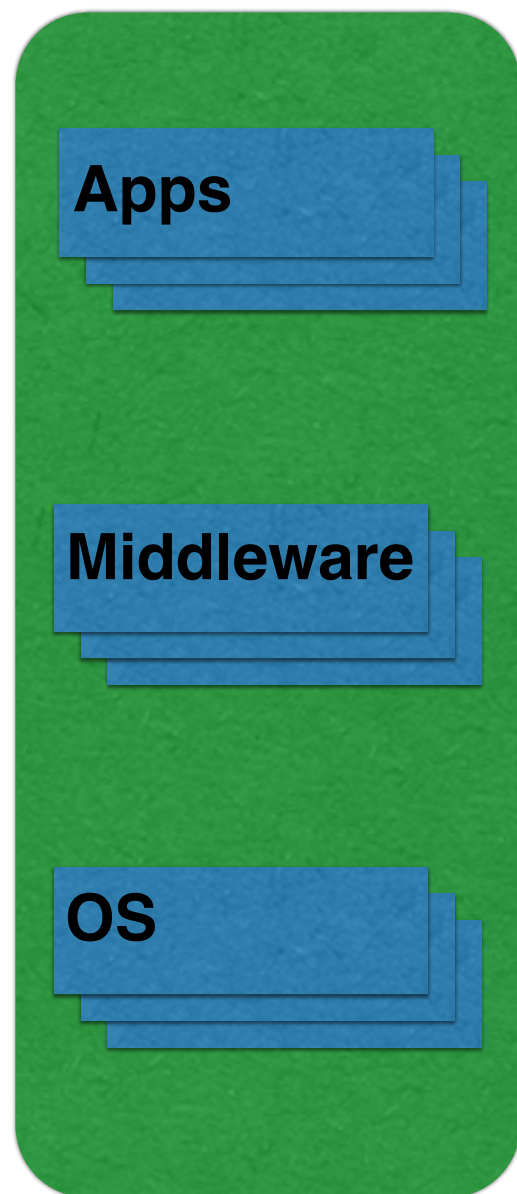
You can modify the audit log configuration in the Graylog configuration file. Please remember to restart the server afterwards.

### Audit Log Entries 15 total

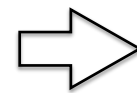
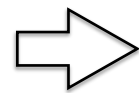
[Search](#)[Reset](#)[Export Results](#)[Show:](#) 20

Timestamp	Actor	Action	Message
2016-09-12 11:42:11.139	hans	update	pipeline rule "filter took_ms" updated
<div><div><b>Actor</b> um:graylog:user:hans</div><div><b>Namespace</b> pipeline_processor</div><div><b>Object</b> um:graylog:pipeline_processor:rule:56d9867c96283fa8b4e45fe4</div><div><b>Action</b> update</div><div><b>Success status</b> SUCCESS</div><div><b>Node ID</b> 3e308565-dec3-4ecd-adb8-b7d1f04a256</div></div> <div><div><b>ruleId</b> 56d9867c96283fa8b4e45fe4</div><div><b>ruleTitle</b> filter took_ms</div></div>			
2016-09-06 15:59:02.530	hans	update	pipelines connected to stream 5666df42bee80072613ce14e updated: 56d9869996283fa8b4e45fe5
2016-09-06 15:57:02.529	hans	update	pipelines connected to stream 5666df42bee80072613ce14e updated: [56d9869996283fa8b4e45fe5, 57b2ced1694fe752fbdac549]
2016-09-06 15:56:53.321	hans	update	pipeline rule "gn tests" updated
2016-08-31 15:14:25.876	hans	update	pipeline rule "filter took_ms" updated
2016-08-31 15:13:42.076	hans	update	pipeline rule "filter took_ms" updated
2016-08-31 15:10:43.301	hans	update	pipeline "Blacklist long requests" updated
2016-08-24 15:05:45.930	hans	update	pipelines connected to stream 56cc6e6196283f6314981339 updated: <empty>
2016-08-24 15:05:35.393	hans	update	pipelines connected to stream 56cc6e6196283f6314981339 updated: [57bd9abf7583f6685f427dca, 56d9869996283fa8b4e45fe5]
2016-08-24 15:03:04.749	hans	update	pipelines connected to stream 56cc6e6196283f6314981339 updated

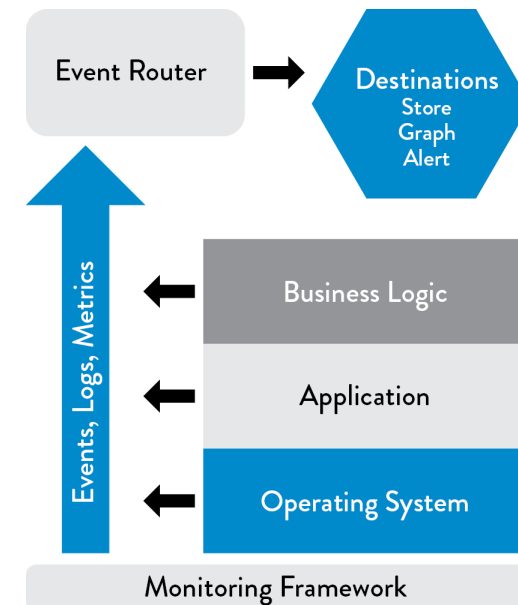
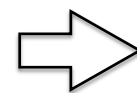
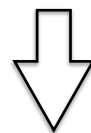
# 解决方案



graylog



pagerduty



# 目的： 更好的运维

# Black screen

```
file.c
libtool: compile: x86_64-pc-linux-gnu-gcc -DHAVE_CONFIG_H -I. -I. -I../include -I../include -I./ref -I/usr/include/et -pipe -O2 -march=native -D_LARGE_FILES= -Wall -Wmissing-prototypes -Wpointer-arith -Wbad-function-cast -Wmissing-declarations -Wnested-externs -pipe -O2 -march=native -c file.c -fPIC -DPIC -o .libs/libhx509_la-file.o
/bin/sh ../libtool --tag=CC --mode=compile x86_64-pc-linux-gnu-gcc -DHAVE_CONFIG_H -I. -I. -I../include -I../include -I./ref -I/usr/include/et -pipe -O2 -march=native -D_LARGE_FILES= -Wall -Wmissing-prototypes -Wpointer-arith -Wbad-function-cast -Wmissing-declarations -Wnested-externs -pipe -O2 -march=native -c -o libhx509_la-sel.lo `test -f 'sel.c' || echo './'`sel.c
libtool: compile: x86_64-pc-linux-gnu-gcc -DHAVE_CONFIG_H -I. -I. -I../include -I../include -I./ref -I/usr/include/et -pipe -O2 -march=native -D_LARGE_FILES= -Wall -Wmissing-prototypes -Wpointer-arith -Wbad-function-cast -Wmissing-declarations -Wnested-externs -pipe -O2 -march=native -c sel.c -fPIC -DPIC -o .libs/libhx509_la-sel.o
/bin/sh ../libtool --tag=CC --mode=compile x86_64-pc-linux-gnu-gcc -DHAVE_CONFIG_H -I. -I. -I../include -I../include -I./ref -I/usr/include/et -pipe -O2 -march=native -D_LARGE_FILES= -Wall -Wmissing-prototypes -Wpointer-arith -Wbad-function-cast -Wmissing-declarations -Wnested-externs -pipe -O2 -march=native -c -o libhx509_la-sel-gram.lo `test -f 'sel-gram.c' || echo './'`sel-gram.c
libtool: compile: x86_64-pc-linux-gnu-gcc -DHAVE_CONFIG_H -I. -I. -I../include -I../include -I./ref -I/usr/include/et -pipe -O2 -march=native -D_LARGE_FILES= -Wall -Wmissing-prototypes -Wpointer-arith -Wbad-function-cast -Wmissing-declarations -Wnested-externs -pipe -O2 -march=native -c sel-gram.c -fPIC -DPIC -o .libs/libhx509_la-sel-gram.o

HOST="x86_64-pc-linux-gnu"
x86_64_pc_linux_gnu_CFLAGS="-pipe -O2 -march=native"
i686_pc_linux_gnu_CFLAGS="-pipe -O2 -march=native"

case "${CATEGORY}/${PN}" in
    sys-apps/paludis)
        NORMAL >> /etc/paludis/bashrc < sh << 9% : 1: 1
[exbull:0] [1:vim] | 2:zsh |
```

```
1 [||||||||||||||||| 62.9%] Tasks: 48, 8 thr; 1 running
2 [||||||| 22.5%] Load average: 1.34 1.07 0.62
Mem[|||||||||||||||||103/247MB] Uptime: 00:21:04
Swp[| 7/15359MB]

PID USER PRI NI VIRT RES SHR S CPU% MEM% IORW TIME+ Command
7583 paludisbu 20 0 8652 2112 1788 S 59.3 0.8 0 1:26.62 sydbox -
72 root 20 0 19132 2452 2304 S 0.6 1.0 0 0:01.11 /usr/lib
271 tureba 20 0 23928 6660 2388 S 0.0 2.6 0 0:04.87 tmux -u2
14177 paludisbu 20 0 6952 2400 1736 S 0.0 0.9 0 0:00.03 make all
12147 root 20 0 480M 19820 15032 S 0.0 7.8 0 0:04.67 cave exe
16659 tureba 20 0 14272 2920 2404 R 0.0 1.2 0 0:00.76 htop
14030 paludisbu 20 0 6980 2316 1656 S 0.0 0.9 0 0:00.04 make all
235 tureba 20 0 76444 3464 2740 S 0.0 1.4 0 0:01.78 sshd: tu
7584 root 20 0 118M 17788 15168 S 0.0 7.0 0 0:00.11 cave per
994 tureba 20 0 29212 8012 4508 S 0.0 3.2 0 0:00.22 vim /etc
26696 root 20 0 118M 17788 15168 S 0.0 7.0 0 0:00.59 cave per
F1Help F2Setup F3Search F4Filter F5Tree F6SortBy F7Nice F8Nice +F9Kill F10Qu

README autom4te.cache configure lnet snmp
Rules build configure.ac lustre stamp-h1
[11:04:40|1023] (tureba@exbull)% cd ../mpi (master e709e66 ~/lus
tree)
[11:04:46|1024] (tureba@exbull)% ls (master 952be15 ~/o
mpi)
AUTHORS Makefile.am VERSION config.lt libtool
Doxyfile Makefile.in aclocal.m4 config.status ompi
HACKING Makefile.ompi-rules autogen.pl configure opal
INSTALL NEWS autom4te.cache configure.ac orte
LICENSE README config contrib oshmem
Makefile README.JAVA.txt config.log examples test
[11:04:46|1025] (tureba@exbull)% (master 952be15 ~/o
mpi)
[11:07:11|1025] (tureba@exbull)% (master 9[11:07:27|
1025][11:07:32|1025] (tureba@exbull)% (master 952be1
5 ~/om[11:09:44|1025] (tureba@exbull)% (master 9
[11:09:52|1025] (tureba@exbull)% (master 952be15 ~/ompi)
[~] | 2015-04-28 11:09
```



# White screen



Acme Sites

Matt Kump

STARRED

# design-work

# events

Cory, Tina, Dio

CHANNELS (39)

# accounting-costs

# brainstorming

# business-ops

# culture

design-chat

marketing

# media-and-pr

sonic-fanfic

trriage-issues

DIRECT MESSAGES (24)

slackbot

Brandon Velestuk

Caroline McCarthy

Cory Bujnowicz

Fayaz Ashraf

Graham Hicks

Lane, Pavel

Mari Ju

Matt Hodgins

Shannon Tinkley

Terra Spitzner

#culture

19 members | Add a topic

Today

Meredith Brown 12:50 PM

Really need to give some Kudos to @julie for helping out with the new influx of tweets yesterday. People are really, really excited about yesterday's announcement.

2 8 1 3

Kiné Camara 12:55 PM

No! It was my pleasure! People are very excited. ⚡

Damien Baker 2:14 PM

What are our policies in regards to pets in the office? I'm assuming it's a no-go, but thought I would ask here just to make sure that was the case.

My pooch just had surgery and I'd like to be with them if possible.

Jake Grimes 2:18 PM

Your assumption is correct. Mostly for allergy concerns, but the building also has a restriction on them.

Jake Grimes 2:19 PM

shared a post

Building Policies and Procedures

Last edited 2 months ago

SECURITY POLICIES

- All guests and visitors must sign in
- Guests and visitors must be accompanied throughout the office
- Last to leave is responsible for setting the alarm.

Damien Baker 2:22 PM

Thanks Jake!

Message #culture

About #culture

Channel Details

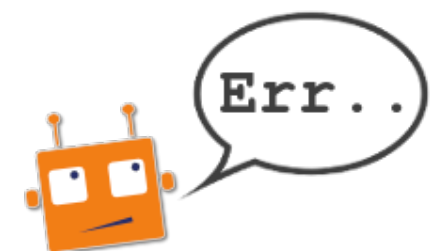
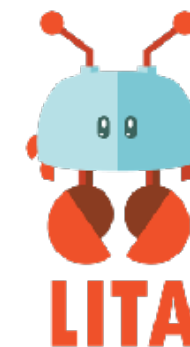
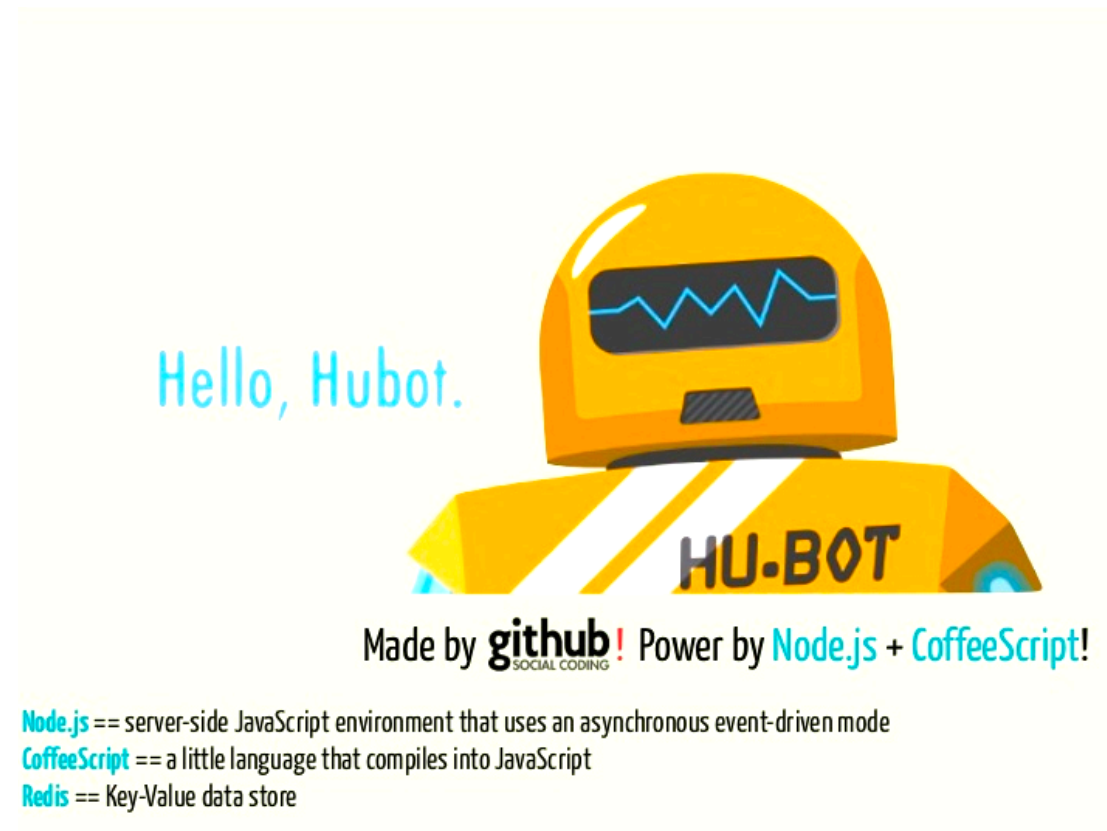
Pinned Items

12/19 Members

Shared Files

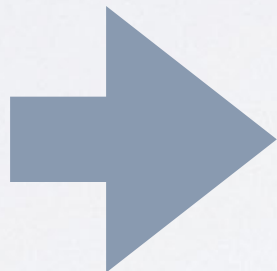
Notification Preferences

# Chat bots



```
rwin10
/Applications/Xcode.app/Contents/Developer/Platforms/iPhoneSimulator.platform/Developer/SDKs/iPhoneSimulator7.0.sdk/usr/lib/gcc/i686-apple-da
rwin10/4.2.1
/Applications/Xcode.app/Contents/Developer/usr/bin/gcc
/Applications/Xcode.app/Contents/Developer/usr/lib/llvm-gcc
/Applications/Xcode.app/Contents/Developer/usr/lib/llvm-gcc/4.2.1
/Applications/Xcode.app/Contents/Developer/usr/lib/llvm-gcc/4.2.1/include
/Applications/Xcode.app/Contents/Developer/usr/lib/llvm-gcc/4.2.1/include/mm_malloc.h
/Applications/Xcode.app/Contents/Developer/usr/lib/llvm-gcc/4.2.1/include/stdarg.h
/Applications/Xcode.app/Contents/Developer/usr/lib/llvm-gcc/4.2.1/include/varargs.h
/Applications/Xcode.app/Contents/Developer/usr/lib/llvm-gcc/4.2.1/libgcc.a
/Applications/Xcode.app/Contents/OtherFrameworks/DevToolsCore.framework/Versions/A/Resources/gcc-message-patterns.txt
/Applications/Xcode.app/Contents/PlugIns/Xcode3Core.ideplugin/Contents/Frameworks/DevToolsCore.framework/Versions/A/Resources/gcc-message-pat
terns.txt
/Library/Developer/CommandLineTools/usr/bin/gcc
/Library/Developer/CommandLineTools/usr/lib/llvm-gcc
/Library/Developer/CommandLineTools/usr/lib/llvm-gcc/4.2.1
/Library/Developer/CommandLineTools/usr/lib/llvm-gcc/4.2.1/include
/Library/Developer/CommandLineTools/usr/lib/llvm-gcc/4.2.1/include/mm_malloc.h
/Library/Developer/CommandLineTools/usr/lib/llvm-gcc/4.2.1/include/stdarg.h
/Library/Developer/CommandLineTools/usr/lib/llvm-gcc/4.2.1/include/varargs.h
/Library/Developer/CommandLineTools/usr/lib/llvm-gcc/4.2.1/libgcc.a
/usr/X11/bin/gccmakedep
/usr/bin/gcc
/usr/bin/llvm-gcc
/usr/include/curl/typecheck-gcc.h
/usr/lib/libgcc_s.1.dylib
/usr/lib/libgcc_s.10.4.dylib
/usr/lib/libgcc_s.10.5.dylib
/usr/local/Library/ENV/4.3/gcc
/usr/local/Library/ENV/4.3/gcc-4.2
/usr/local/Library/ENV/4.3/gcc-4.3
/usr/local/Library/ENV/4.3/gcc-4.4
/usr/local/Library/ENV/4.3/gcc-4.5
/usr/local/Library/ENV/4.3/gcc-4.6
/usr/local/Library/ENV/4.3/gcc-4.7
/usr/local/Library/ENV/4.3/gcc-4.8
/usr/local/Library/ENV/4.3/gcc-4.9
/usr/local/Library/ENV/4.3/i686-apple-darwin11-llvm-gcc-4.2
/usr/local/Library/ENV/4.3/llvm-gcc
/usr/local/Library/ENV/4.3/llvm-gcc-4.2
/usr/local/Library/Formula/apple-gcc42.rb
/usr/share/file/magic/gcc
/usr/share/vim/vim73/compiler/gcc.vim
/usr/share/zsh/5.0.2/functions/_gcc
Christophs-MacBook-Pro:bin chammann$ █
```

shared cli



Acme Sites

CHANNELS

# api

# changes

# general

# marketing

# products 1

# random

# sales

# support

# web

+3 more...

DIRECT MESSAGES

slackbot

david

don

eric

jessica

liz

myles

stewart

tara

+7 More...

kristel online

#changes

stewart 1:05 PM

Im'ma tweeting that

<https://twitter.com/glitchlog/status/223600465462566912>

Glitch Change Log @glitchlog

12 new hairstyles & 19 new skin colors have been added to the Vanity. Taste the hairy rainbow! Forum post:

<http://www.glitch.com/forum/general/24360/>

Thursday, July 12th, 2012 7:11 PM

myles 1:07 PM

Entering a street with a Qurazy for you now shows a pretty animated overlay where the growl used to go, for 10 seconds

liz 1:09 PM

Fixed bug #9358. Piggies shouldn't get stuck walking in place any more.

bugbot 1:10 PM

Bug #9358

Title

Piggies are stuck walking in place

Creator

mackenzie

Assignee

liz

Status

fixed

Priority

normal

eric 1:14 PM

@kristel, can you test on [dev.glitch.com](http://dev.glitch.com) to see if coat sleeves are now working as expected?

kristel 1:15 PM

indeed they are! thanks @eric!

# PD

pager duty **alert**

**high**

Critical application **latte** is unresponsive,  
please help check!

# slack

## @chat-bot check latte

*Hi, trying to get the health check, one sec...*

requested state: started

instances: 2/2

	state	since	cpu	memory	disk
--	-------	-------	-----	--------	------

details

#0	running	2016-11-28 09:42:23 PM	186.3%	329.6M of 2G	390.2M of 1G
----	---------	------------------------	--------	--------------	--------------

#1	running	2016-11-28 09:44:38 PM	210.5%	319.7M of 2G	390.2M of 1G
----	---------	------------------------	--------	--------------	--------------

## @chat-bot restart latte

*Hi, trying to restart xxx, one sec...*

**latte was restarted, here is the health check,**

requested state: started

instances: 2/2

	state	since	cpu	memory	disk
--	-------	-------	-----	--------	------

details

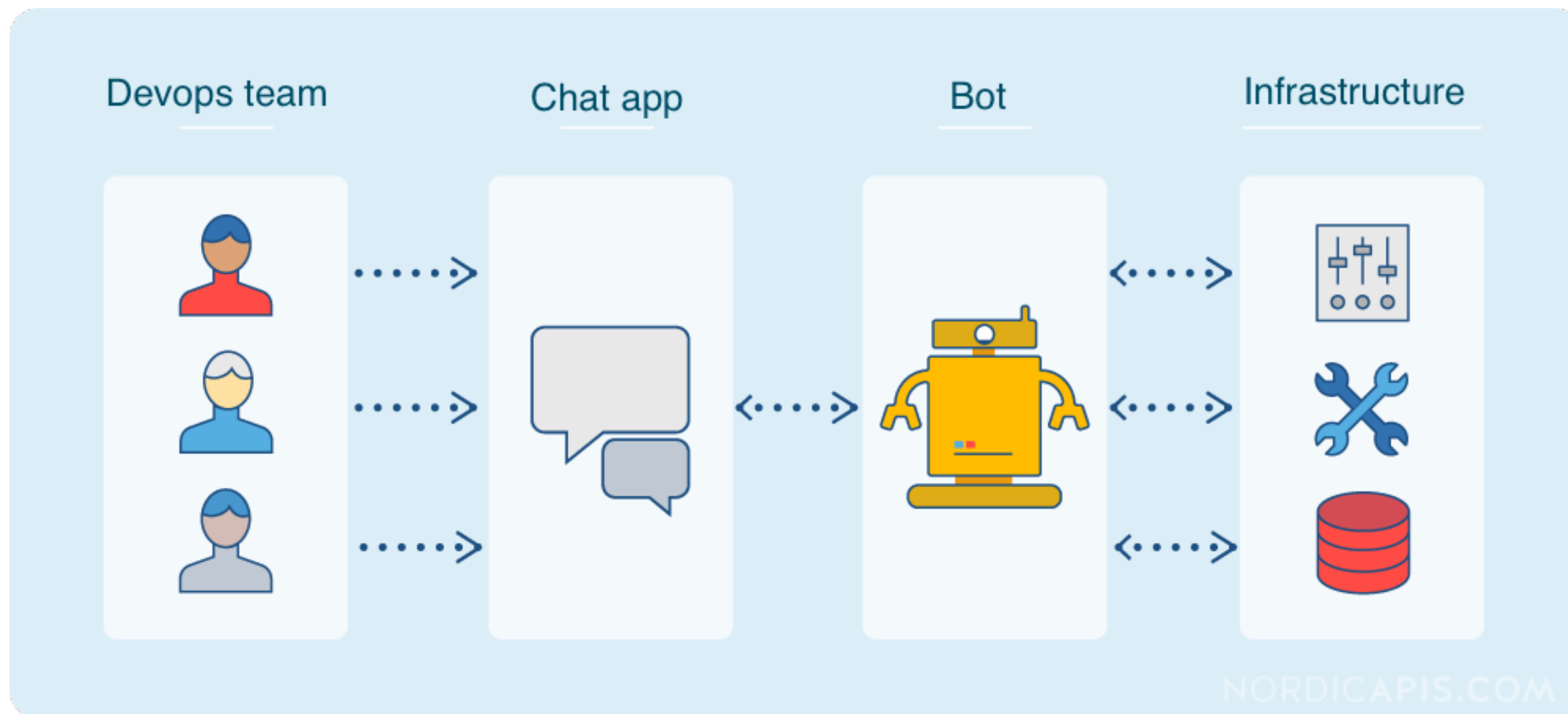
#0	running	2016-11-28 09:42:23 PM	0.3%	317.6M of 2G	390.2M of 1G
----	---------	------------------------	------	--------------	--------------

#1	running	2016-11-28 09:44:38 PM	0.5%	326.7M of 2G	390.2M of 1G
----	---------	------------------------	------	--------------	--------------



# ChatOps

# ChatOps工作流程





**shokai** 2:51 PM

hubot rss list



**hubot** 2:51 PM

<http://shokai.org/blog/feed>

<https://github.com/shokai.atom>



**shokai** 2:51 PM

hubot rss add <https://news.ycombinator.com/rss>



**hubot** 2:51 PM

registered <https://news.ycombinator.com/rss>



ICFP Programming Contest 2014

<http://icfpcontest.org/specification.html>



Natl: Multi-language voice control system for Ubuntu

<https://github.com/rcorcs/Natl>

2:51 ★



CoreOS Stable Release

<https://coreos.com/blog/stable-release/>



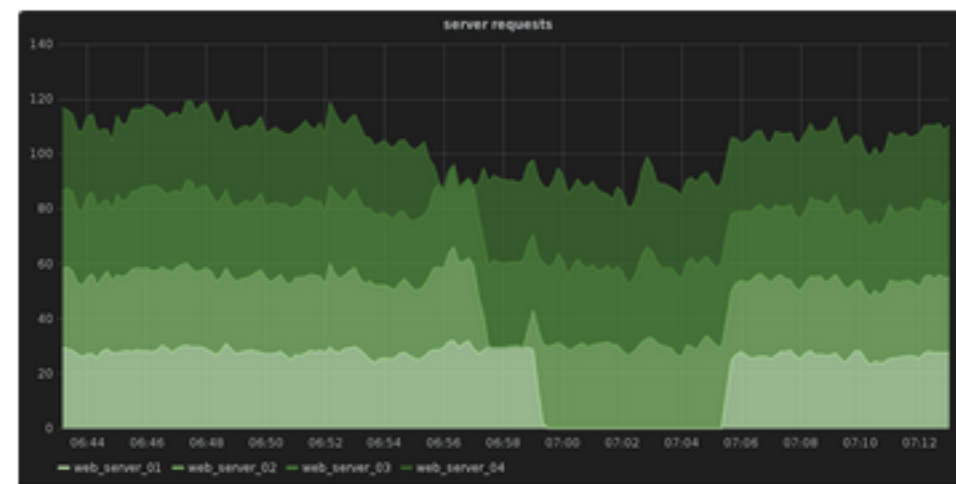
**torkelo** 1:12 PM

hubot graf db loadbalancers:2 now-30m



**hubot** BOT 1:13 PM

server requests: <https://grafana-share-test.s3.amazonaws.com/grafana/f21>



- <http://play.grafana.org/dashboard/db/loadbalancers/?panelId=2&fullscreen>

# 改善团队协作

- 焦急的追着一个**email thread**
- 时时**report**团队的进展



Everything in chat room

@hubot commit pro/fix

@hubot push pro/fix

@hubot test pro/fix

@hubot deploy pro/fix

@hubot status pro

更好的分享信息

更好的学习知识



hey guys, what happen?



hey, who can tell me, what happened? my customer can't login now

# Never stop!



@hubot check firewall status

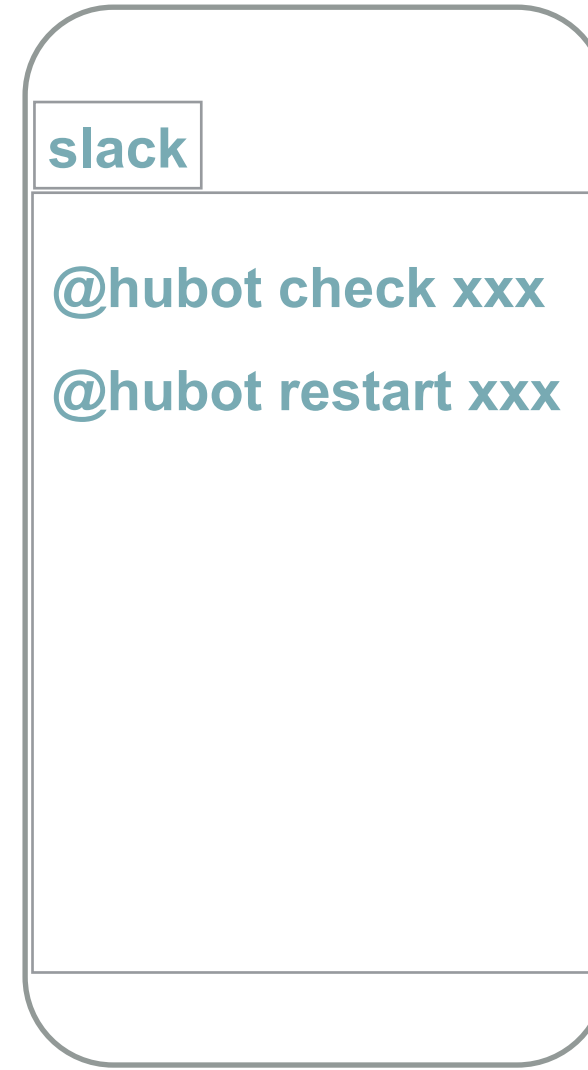
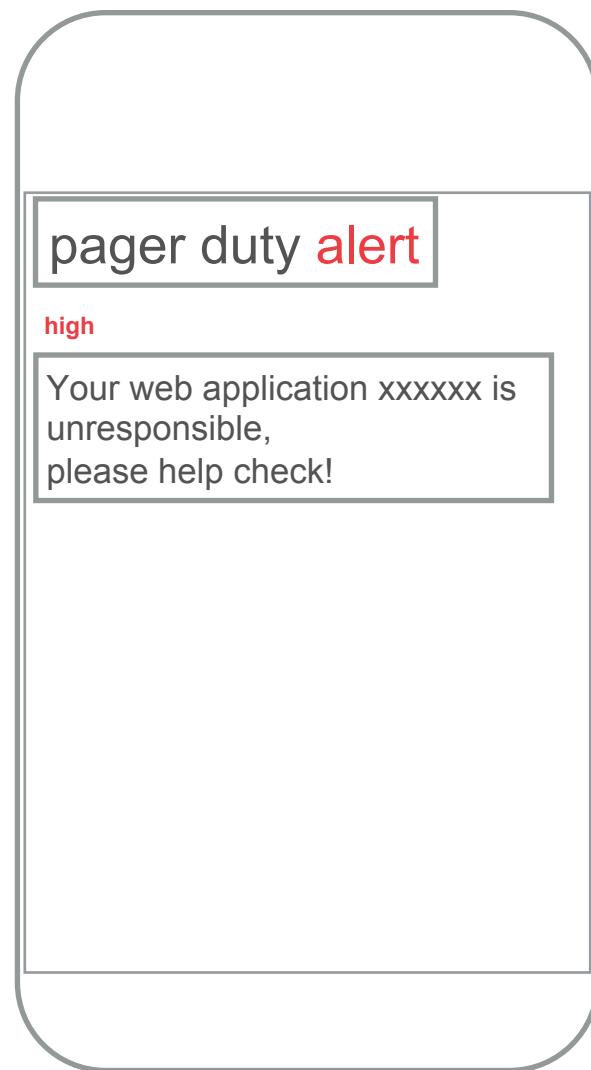


hi, checking for you...  
firewall got high cpu issue.



@hubot log firewall status


@hubot restart firewall



# Do ops everywhere with your smart phone and bot!



# All in slack


 **PagerDuty** BOT 11:08 PM

Triggered #3727: 500 count is elevated on multiple nodes


Assigned: Bruce Soord Service: Payments API

Dial-in Number: 202-555-0179,,834561#

Meeting URL: [conferencecall.biz](https://conferencecall.biz)


 Reassigned to Bruce Soord | Today at 11:12 PM

Acknowledged #3727: 500 count is elevated on multiple... [Jump](#) | by Jon Sykes


 **jon** 11:10 PM

hmm, looks to be related to a deploy that just went out on the auth stack


@brucey: looks like your deploy, do you know what the problem is?


 **brucey** 11:10 PM

yeah, it's mine. rolling back


 **jon** 11:11 PM

okay. i'm going to reassign


 1

 **PagerDuty** BOT 11:12 PM

Reassigned #3727: 500 count is elevated on multiple... [Jump](#) | to Bruce Soord


 **shokai** 2:51 PM

hubot rss list


 **hubot** 2:51 PM

<http://shokai.org/blog/feed>


<https://github.com/shokai.atom>

 **shokai** 2:51 PM


hubot rss add <https://news.ycombinator.com/rss>

 **hubot** 2:51 PM


registered <https://news.ycombinator.com/rss>

 ICFP Programming Contest 2014

<http://icfpcontest.org/specification.html>

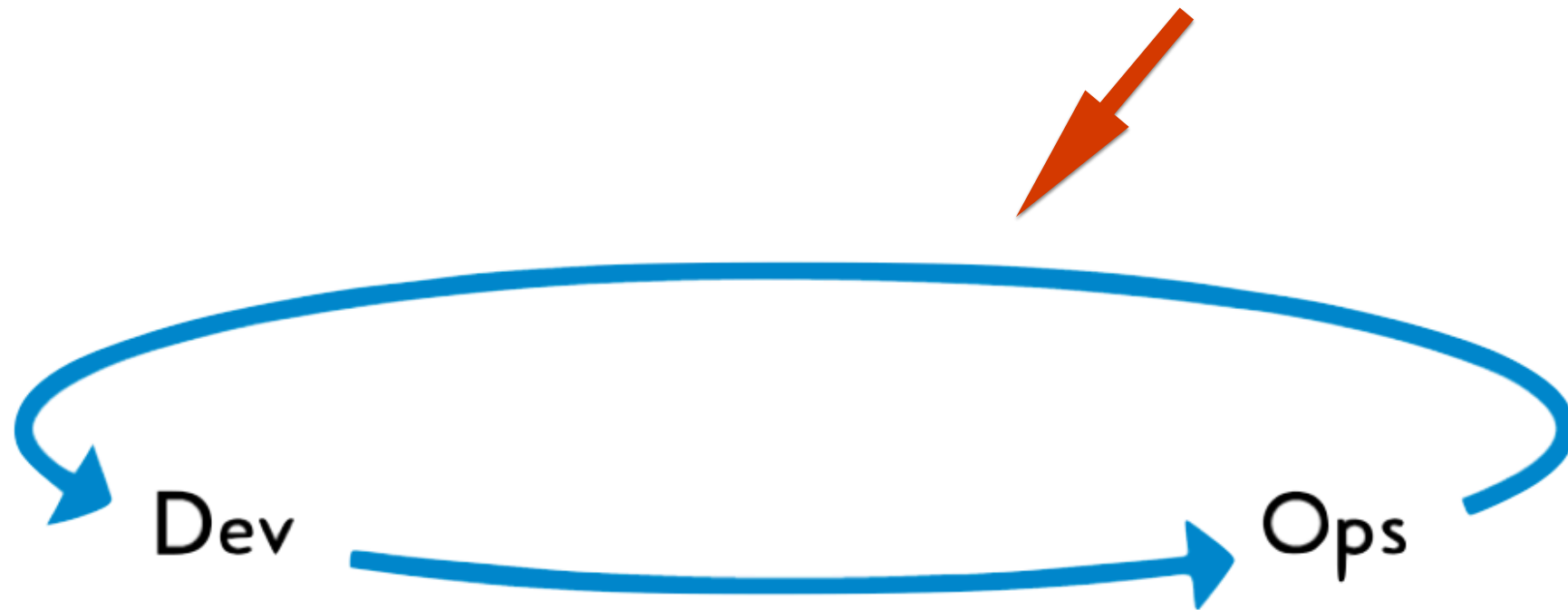
 Natl: Multi-language voice control system for Ubuntu

<https://github.com/rcorcs/Natl>

2:51 ★  CoreOS Stable Release

<https://coreos.com/blog/stable-release/>


# ChatOps accelerate feedback



# Too many alerts

[illegible]

# No screen

 **pagerduty** 10:57 AM ★

**Event**  
Incident Triggered ([Pingdom](#))

**Subject**  
DOWN alert: dal05 storm extraction ([api-dal.keen.io](#)) is DOWN

**Assigned To**  
[Alan Shreve & Jay Shirley](#)

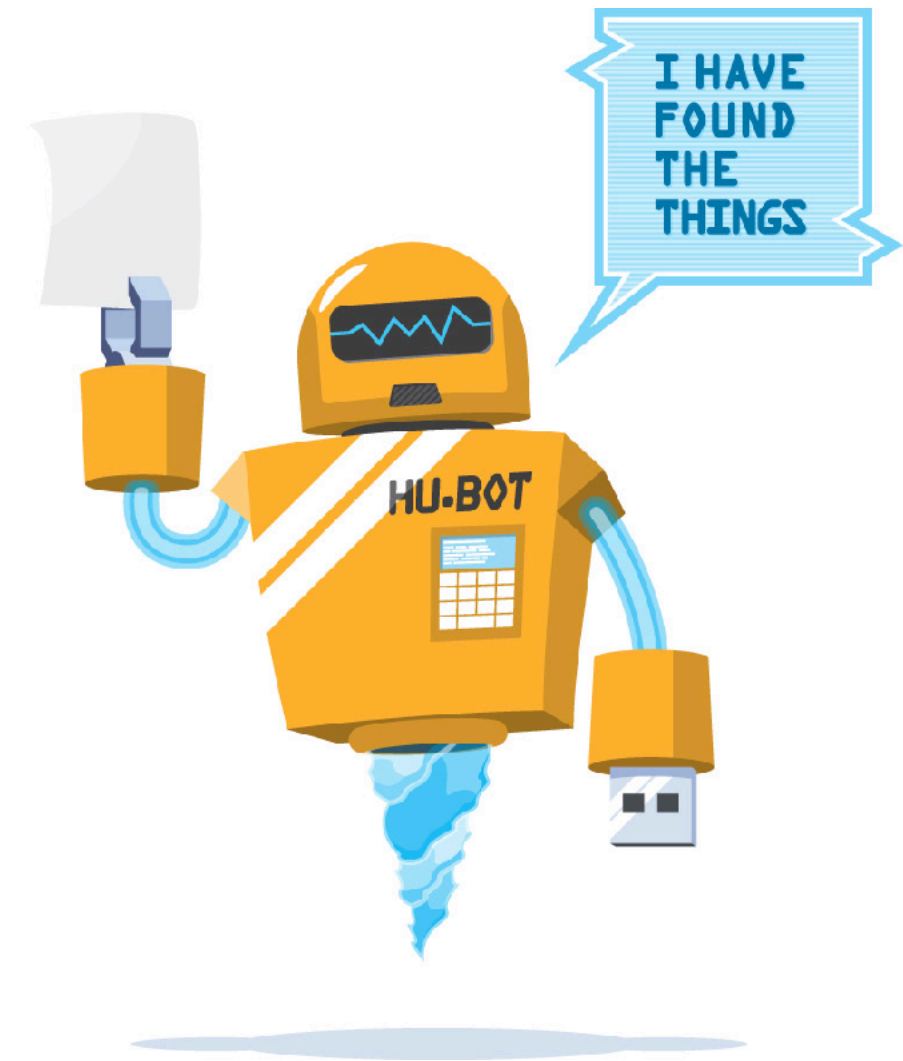
[View Incident Details](#)

---

**Event**  
Incident Resolved ([Pingdom](#))

**Subject**  
DOWN alert: dal05 storm extraction ([api-dal.keen.io](#)) is DOWN

[View Incident Details](#)



自动修复



10:57 AM

Event  
Incident Triggered (Pingdom)

Subject  
DOWN alert: dal05 storm extraction (api-dal.keen.io) is DOWN

Assigned To  
Alan Shreve & Jay Shirley

[View Incident Details](#)

Event  
Incident Resolved (Pingdom)

Subject  
DOWN alert: dal05 storm extraction (api-dal.keen.io) is DOWN

[View Incident Details](#)

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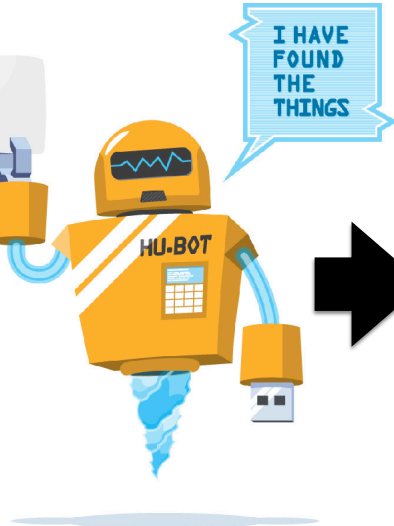
Event  
Incident Resolved (Pingdom)

Subject  
DOWN alert: dal05 storm extraction (api-dal.keen.io) is DOWN

[View Incident Details](#)

Watson  
Wit. ai  
Api.ai

I HAVE  
FOUND  
THE  
THINGS



@pipilu fix high disk usage 10.23.x.x  
 @luxixi fix high CPU usage 10.24.x.x  
 @shuke restart firewall 10.25.x.x  
 @beta restart app portal.prod  
 ...

pipilu



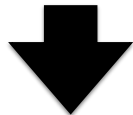
luxixi



shuke



beta



API

API

API

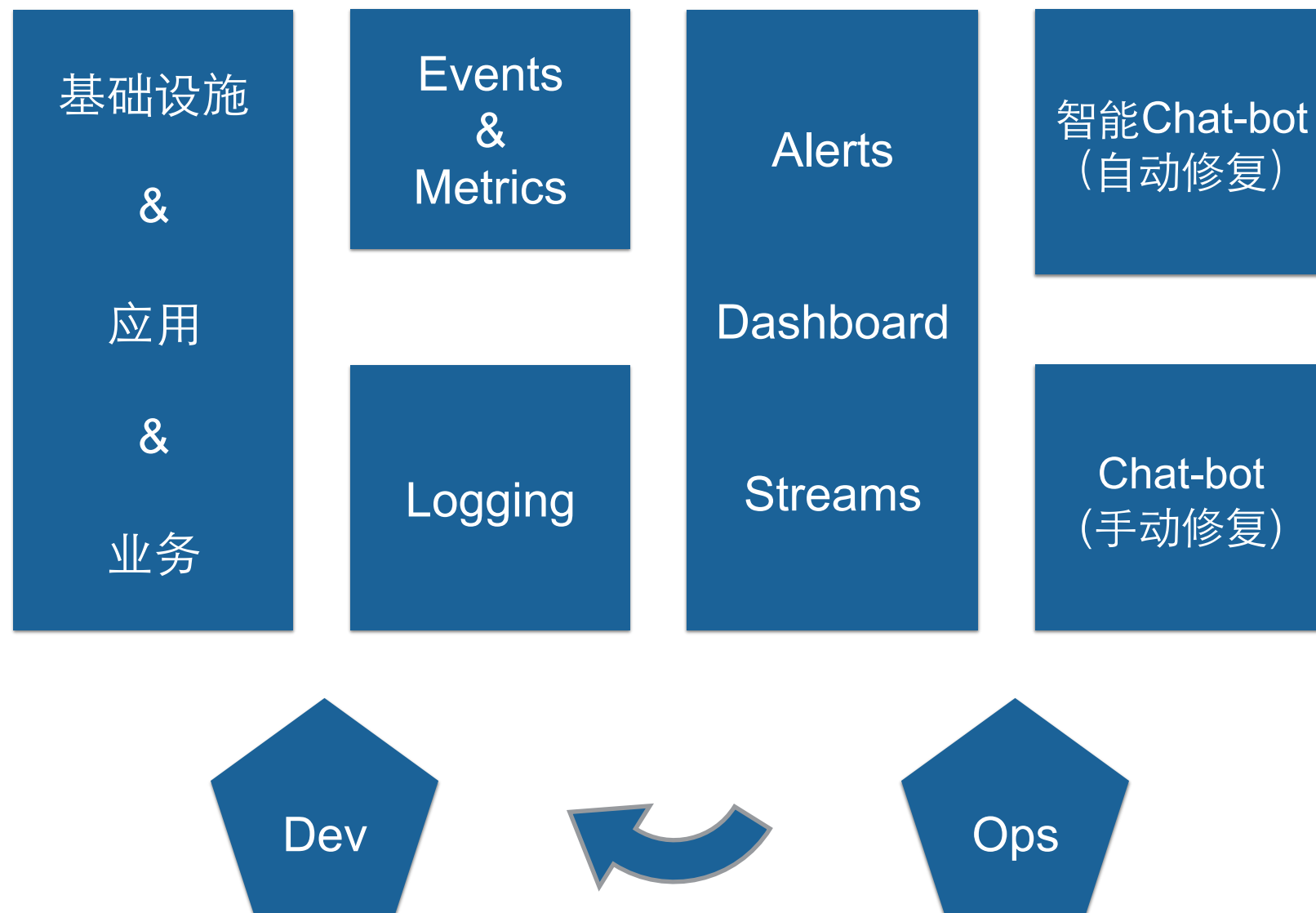
API

monitoring

Infrastructure, apps, business logic









**THANKS!**

智 能 时 代 的 新 运 维

**CNUTCon 2017**