



运维自动化 实践之路

自我介绍



伏晔

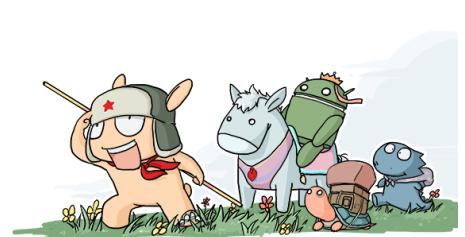
微博: <http://weibo.com/xingfuge613>

2005 ~ 2012 BAIDU

- 3年应用运维
- 3年运维自动化建设

2013 ~ 今 小米

- 应用运维团队
- 运维自动化事务



运维基础设施

调度

搭业务环境

改配置

线上升级

迁移

扩容

关联变更

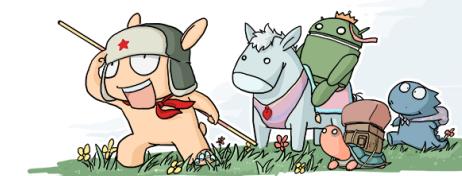
监控

部署

名字服务

服务树&机器管理&...

配置管理数据库



OUTLINE

- 服务树
- 部署系统
- 规范要求



服务树 – 设计



组织结构

系统组成

物理位置

机器TAG形式进行标记

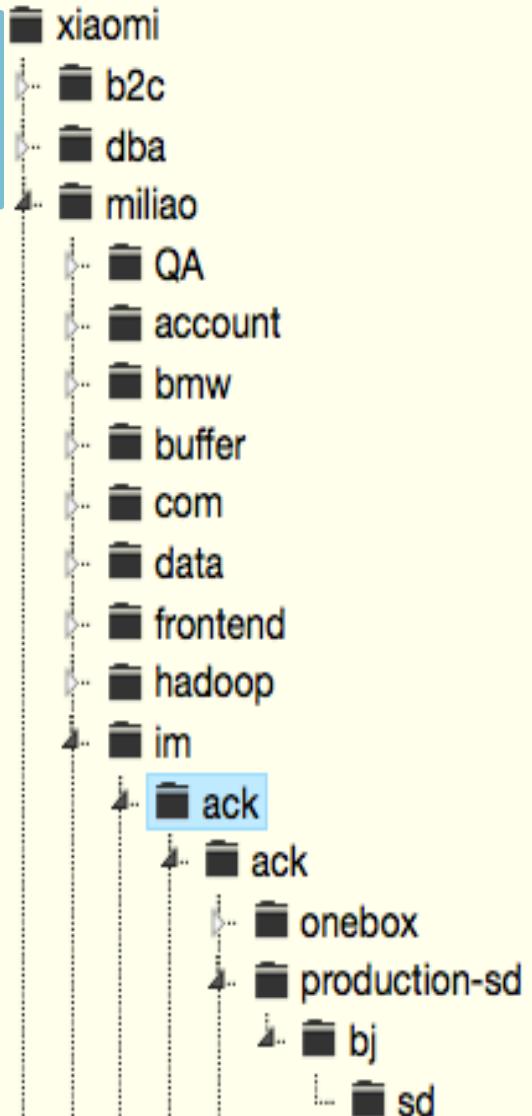
根据TAG动态筛选机器



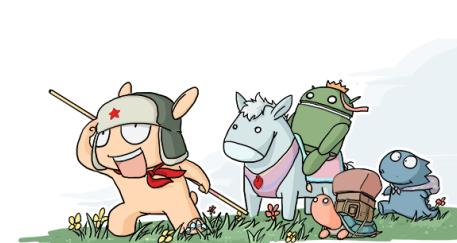
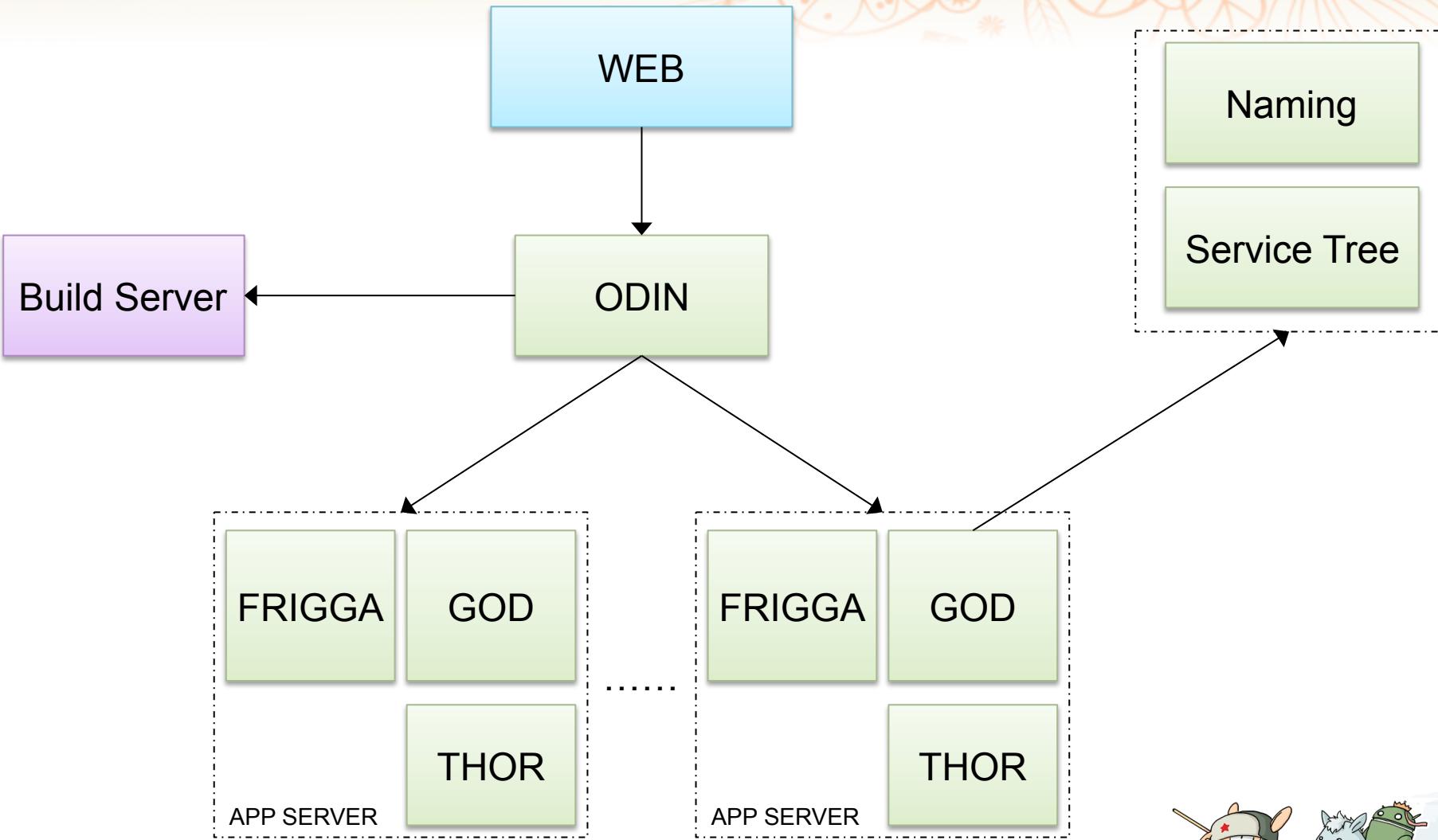
服务树 – WEB



cop.xiaomi_owt.miliao_pdl.im_service.xiaomi-mq_jobgroup.micloud_job.xmq-micloud-cell01-micloud011_status.service_loc.bj_idc.sd_cluster.production-sd



自动部署 – 架构



部署系统 – WEB



服务详情

job.database-change-handler_service.database-change-handler_cluster.production-hh_pdl.account_owt.miliao_cop.xiaomi

*service:

[显示复杂tag](#)

*部署环境:

*代码url:

*部署账号:

*部署路径:

启停动作:

代码分支:

相对路径:

sleep:

暂停step: 台机器

0:不暂停

1:每执行1台暂停

2:每执行2台暂停

n:每执行n台暂停

模板值:



部署系统 – WEB

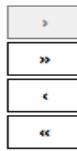


第一步：确认部署信息(job.database-change-handler_service.database-change-handler_cluster.production-hh_pdl.account_owt.miliao_cop.xiaomi)

部署实例

搜索:

```
cc-00-fe01.bj  
cc-00-fe02.bj  
cc-00-fe03.bj  
cc-00-fe04.bj  
cc-mt01.bj  
cc-mt02.bj  
cc-mt03.bj  
cc-mt04.bj  
cm-l7-fe03.bj  
cm-l7-fe04.bj  
fe01.bj  
fe02.bj  
fe03.bj  
fe04.bj
```



部署实例 (2个)

```
cc-mt01.bj  
cc-mt02.bj
```



导入

服务信息

分支(注意主干: git为master,svn为trunk):

master

获取分支版本

version(分支:master 上次部署版本:131127):输入

142469 [] [UT:]



部署账号:

root

部署路径:

/home/work/database-change-handler

是否为定时任务:

否 是

启停动作:

restart

暂停step(0:不暂停,n:每执行n台暂停):

1 台机器

sleep(每执行完一台机器sleep的时间):

(秒)

模板值:

JAVA_OPTS = "-Dzookeeper.servers.resourcefile=hh_zookeeper_servers.properties"

隐藏高级设置

第二步：发起部署

编译
并部署

强制重编译
并部署

部署系统 – WEB



查看任务 [发起任务](#) 迁移xrelease模块

← 当前节点: cop.xiaomi

[我的任务](#) [所有任务](#)

id	发起人	服务名	版本	发起时间	结束时间	状态	任务控制	操作	日志
8220	shiyang_cc	job.micloudcarddav_service.micloudcarddav_cluster.production-lg	11f139955	2014-04-15 17:26:17		部署中	刷新 结束 暂停	查看 复制 cluster.conf	web操作 Odin 编译日志 编译错误日志

← 1 of 1 → 5 ▾

任务进度
id:8220
33.3%

服务名	机器名 (总共:3)	状态 (未执行:2)
job.micloudcarddav_service.micloudcarddav_cluster.production-lg_pdl.micloud_owt.miliao_cop.xiaomi	lg-mc-fe16.bj	deploying
job.micloudcarddav_service.micloudcarddav_cluster.production-lg_pdl.micloud_owt.miliao_cop.xiaomi	lg-mc-fe17.bj	
job.micloudcarddav_service.micloudcarddav_cluster.production-lg_pdl.micloud_owt.miliao_cop.xiaomi	lg-mc-fe18.bj	



部署系统 – ODIN



ODIN解析
cluster.yml

- Cluster.yml

cluster:

name: database-change-handler

version: 1.0.0.1

env: production

jobs: [job.database-change-handler_
service.database-change-handler_cluster.preview_
pdl.account_owt.miliao_cop.xiaomi, xxxx, xxx]

下载PKG并重新生成
发布包

dch:

host: [10.237.37.43, 10.237.37.45, 10.237.37.46]

user: root

version: 93043

path: /home/work/passport-dch

pkg_url <ftp://>

db_passwd:xxxx

backup_key:68e7012d5bdca6eaceeb2682e4b20c96

mon_value: mon.template.yml

触发host中机器的
FRIGGA

通过frigga调用god
接口检查服务状态



部署系统 – THOR



替换模板生
成临时配置

下载要部署
的包文件

进行文件的
部署

生成GOD
启动配置

触发GOD
启动程序

● Init.yml

Dch:

```
type:file  
name:${basedir}/conf/dch.conf  
source:template( "dch.conf.erb")
```

monitor:

```
type: mon  
name: ${basedir}/conf/mon.conf  
source:template("mon.conf.erb")
```

backup:

```
type: backup  
name: ${basedir}/conf/  
backup.conf  
source:template("backup.conf.erb")
```

● Config.template.yml

base:

```
basedir: "$<path>"  
user: "$< user >"  
mod_name: "$< name >"  
db_password: "$< db_passwd >"  
tag: "$< job >"  
#app running control  
mod_start: "${basedir}/bin/run.sh"  
mod_stop: "${basedir}/bin/stop.sh"  
to_email: xxx@xiaomi.com
```

production:

zookeeper_host: zk.xiaomi.com

staging:

zookeeper_host:
zk.staging.xiaomi.com



部署系统 – GOD



```
God.watch do |w|
  w.ver = "139594"
  w.name = "job.database-change-handler_service.database-change-
handler_cluster.production-sd_pdl.account_owt.miliao_cop.xiaomi"
  w.start = "sh /home/work/database-change-handler/bin/DbEventListener.sh -r"
  w.gid = "root"
  w.uid = "root"
  w.log = "/data/soft/database-change/logs/database-change.log"
  w.dir = "/home/work/database-change-handler/"
  w.cron = "/etc/god_cron.d/job.database-change-handler_service.database-change-
handler_cluster.production-sd_pdl.account_owt.miliao_cop.xiaomi.cron"
  w.stop_timeout = 300.seconds
  w.lifecycle do |on|
    on.condition(:flapping) do |c|
      c.to_state = [:start, :restart]
      c.times = 3
      c.within = 10.minute
      c.notify = 'proc_down'
    end
  end
end
```



部署系统 - 管理



服务列表

服务	代码地址	部署路径	实例数 (running/total)	部署次数	
发起	job.database-change-handler_service.database-change-handler_cluster.preview	https://code.miliao.com/repos/xiaomi-miliao/trunk/src/cloud/XMChannel/database-change-handler	/home/work/database-change-handler	0 / 0	0
发起	job.database-change-handler_service.database-change-handler_cluster.production-hh	https://code.miliao.com/repos/xiaomi-miliao/trunk/src/cloud/XMChannel/database-change-handler	/home/work/database-change-handler	2 / 2	2
发起	job.database-change-handler_service.database-change-handler_cluster.production-lg	https://code.miliao.com/repos/xiaomi-miliao/trunk/src/cloud/XMChannel/database-change-handler	/home/work/database-change-handler	4 / 4	3
发起	job.database-change-handler_service.database-change-handler_cluster.production-sd	https://code.miliao.com/repos/xiaomi-miliao/trunk/src/cloud/XMChannel/database-change-handler	/home/work/database-change-handler	2 / 2	21
发起	job.database-change-handler_service.database-change-handler_cluster.staging	https://code.miliao.com/repos/xiaomi-miliao/trunk/src/cloud/XMChannel/database-change-handler	/home/work/database-change-handler	0 / 0	1
发起	job.gg-passport-tungsten_service.gg-passport-tungsten_cluster.production-sd	0	/home/work/opdir/passport-tungsten	0 / 0	4
发起	job.lg-passport-tungsten-manager_service.lg-passport-tungsten-manager_cluster.production-sd	0	/home/work/passport-tungsten-manager	0 / 0	1
发起	job.ln-passport-tungsten-manager_service.passport-tungsten-	https://code.miliao.com/repos/xiaomi-miliao/trunk/src/cloud/XMChannel/database-change-handler	/home/work/passport-tungsten	0 / 0	0

批量发起

新增服务

实例列表

当前服务为:

机器名	版本号	状态	dashboard	frigga
mt07.bj	131638	running	dashboard	frigga
mt08.bj	131638	running	dashboard	frigga
mt09.bj	131638	running	dashboard	frigga
mt06.bj	131638	running	dashboard	frigga

部署系统 - 管理



Frigga 进程管理

[Home](#)[Log](#)[About](#)

Process	Status	Start Time	Action
passport-agent 104881	running	2013-08-05 14:32:59	stop restart nuke Log ▾
passport-mt 104894	running	2013-08-05 14:38:56	stop restart nuke Log ▾
passport-https 104898	stop		start restart nuke Log ▾

注意: 点击stop按钮停止tail log, 继续tail log请刷新本页面 ×

```
ken is called from ip:null,parameters:[0QxjFrjieRMkJ7AH4gTZJ00g0P6RH6d3d06fd1/011kX4Y/SqKzfoPhIu37Qgu0c6Q7FZU0w+CoaDcVvxrcmaAtdCEsoNcIRrarS9j6MM8c=, miuiromota]
2013-08-06 19:53:00,579 [pool-1-thread-33] INFO com.xiaomi.passport.agent.PassportAgentMain - api:decryptServiceTo
ken is called from ip:null,parameters:[0QxjFrjieRMkJ7AH4gTZJLuyNlCG9DZhpsrBSI2qQVtielxDfogkHuvXMiEaFwLDizm7d5cPMG5
NgKorVF6TQkXUjBcjEVg4EBP7Lgb8=, miuiromota]
2013-08-06 19:53:00,592 [pool-1-thread-48] INFO com.xiaomi.passport.agent.PassportAgentMain - api:decryptServiceTo
ken is called from ip:null,parameters:[0QxjFrjieRMkJ7AH4gTZJC6sdREn+/RXR7mjINJEQuD9x9hL1Qjqw8492P+HY3iiuDuNEfgoGC12
qT3MnJVL1RWW9SmyjOuEtJpUDM+GOhQ=, miuiromota]
2013-08-06 19:53:00,613 [pool-1-thread-18] INFO com.xiaomi.passport.agent.PassportAgentMain - api:decryptServiceTo
ken is called from ip:null,parameters:[0QxjFrjieRMkJ7AH4gTZJCJ5DonckjhvifCG/yz/A2nK8DJa7tjZcx500I1WCmP5+7w3RpQKB/Ga
3fArbZKki7EaB645bp375Ih2fR/KKrc=, miuiromota]
2013-08-06 19:53:00,617 [pool-1-thread-22] INFO com.xiaomi.passport.agent.PassportAgentMain - api:decryptServiceTo
ken is called from ip:null,parameters:[0QxjFrjieRMkJ7AH4gTZJNDyXoHMd5KMMTghheana/Ax07sjUUxbUtztktFjjL3svhe82YZQ0qjG
vxDTjtitiXojw+8KJ15EXcJmji1+Ic=, miuiromota]
2013-08-06 19:53:00,620 [pool-1-thread-33] INFO com.xiaomi.passport.agent.PassportAgentMain - api:decryptServiceTo
ken is called from ip:null,parameters:[0QxjFrjieRMkJ7AH4gTZJDkn6ARIro6kxH7fzyRiFOIJ5vx19027o1igBTnMM8/BTnTAyK0jbuT9
Wq+zWUrCnP0We8v7ok65aMk5cMxH+bE=, miuiromota]
2013-08-06 19:53:00,629 [pool-1-thread-19] INFO com.xiaomi.passport.agent.PassportAgentMain - api:decryptServiceTo
ken is called from ip:null,parameters:[0QxjFrjieRMkJ7AH4gTZJDL08nzpA3Eb/KtnYhJMzo95QEYE137iDtdj6ntxEMcck1p2RuedMd38
GAlc+Cd3EonDoZDCwYEKpQjhi9Md1T0=, miuiromota]
2013-08-06 19:53:00,659 [pool-1-thread-10] INFO com.xiaomi.passport.agent.PassportAgentMain - api:decryptServiceTo
ken is called from ip:null,parameters:[0QxjFrjieRMkJ7AH4gTZJD+Mqmhb5QUrlsxcSSQqE5BHgsTR/Ym5AT1s7BUT0XLfb6tXVC03B4bth
2giFJ+nVVgiM8S6L5nSWwOVwXtV0oMw=, miuiromota]
2013-08-06 19:53:00,692 [pool-1-thread-31] INFO com.xiaomi.passport.agent.PassportAgentMain - api:decryptServiceTo
ken is called from ip:null,parameters:[0QxjFrjieRMkJ7AH4gTZJFm0gRlgDq8k8EQOWOYeCImFlzhnc6xpjN8cBf/xIonBsk8A1vrs2Ek
```

部署系统 – 持续部署

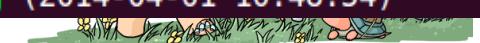


- Odin.rb – f cluster.yml
- Thor – f cluster.yml

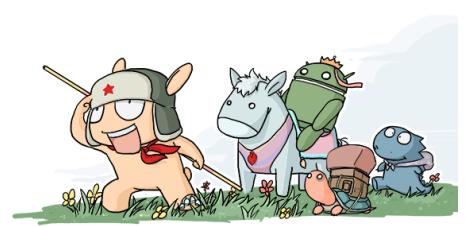
```
[root@localhost opshell]# odin/bin/odin.rb -f passport.yaml
Prepar to bootstrap deployment environment...
Start to deploy jobs order by host...[total:3]
[Host:1/3]-->[127.0.0.1][Jobs:1]->[database-change-handler:succ]->(time:15)
go on to deploy next host ? [yes/all/quit]: all
[Host:2/3]-->[10.237.37.24][Jobs:1]->[database-change-handler:succ]->(time:7)
[Host:3/3]-->[10.237.37.23][Jobs:1]->[database-change-handler:succ]->(time:7)
[Total] passport-1.0.0.1-staging: [database-change-handler:3/3]
+-----+-----+-----+
|                               Deployment Status
+-----+-----+-----+
| Job           | Progress | Deployed Host          | Undeployed Host |
+-----+-----+-----+
| database-change-handler | 3/3    | 127.0.0.1 10.237.37.24 10.237.37.23 |
+-----+-----+-----+
All jobs is done, clean /tmp/passport-1.0.0.1/ and /tmp/passport-1.0.0.1.tar.gz.
```

- god status

```
[work@____ 08 ~]$ god status
frigga[25933 root]: running (2014-03-26 23:03:43)
database-change-handler_database-change-handler_production-sd[8617 root]: running (2014-04-01 10:48:54)
```



规范要求



规范要求 – 目录结构

- 发布包结构

Passport-agent

- release
- target
- deploy
 - config.template.yml
 - init.yml
- 模板目录
 - dch.conf.erb

- 程序、数据分离

/home/xxx/passport-agent

- bin
- conf
- log
- dict



规范要求 – 环境

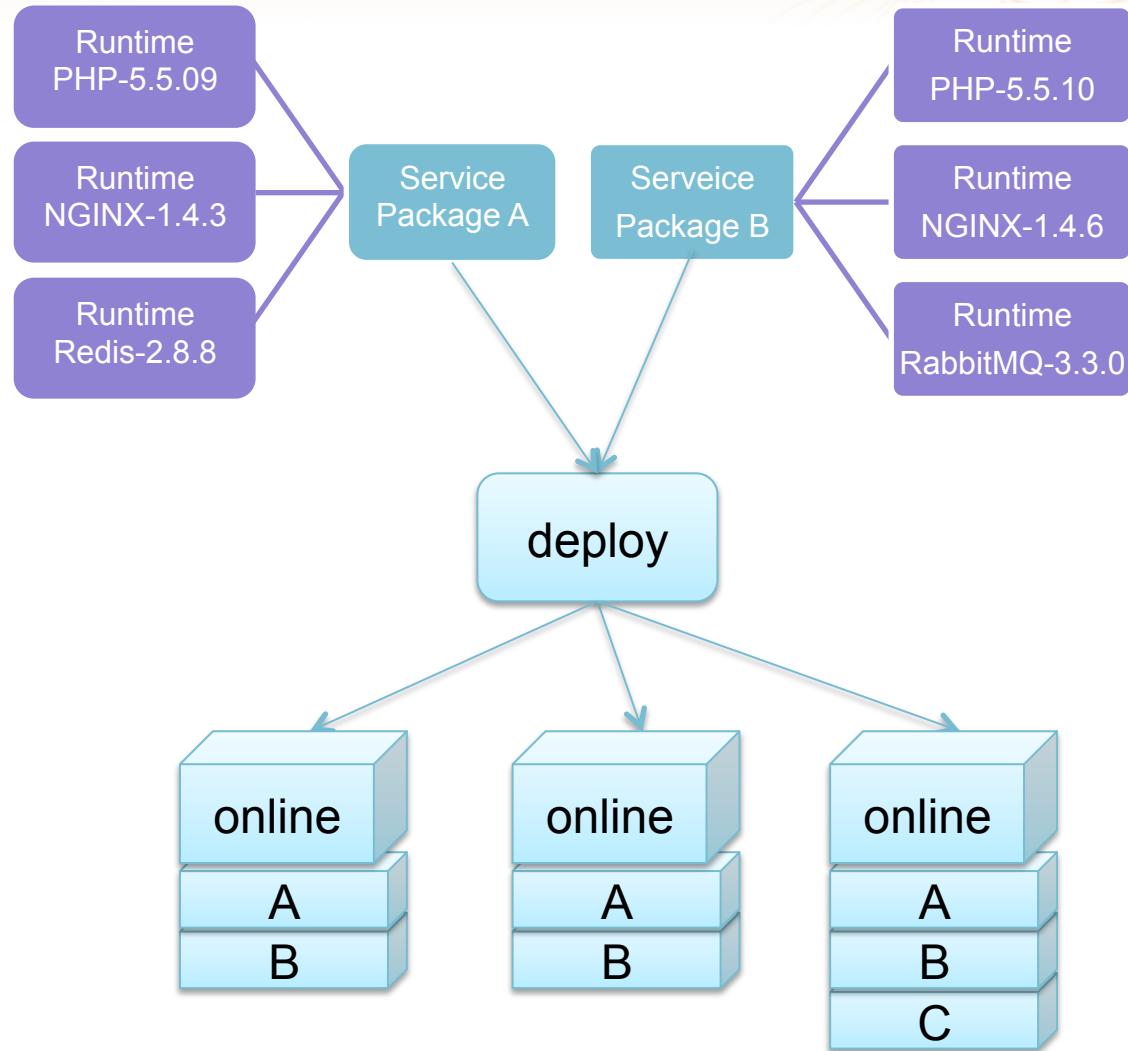


- 统一系统内核、发行版、初始环境

- 编译环境
- 解释器
- 系统Lib
- 关键配置依赖
- 命令行



规范要求 – Runtime依赖

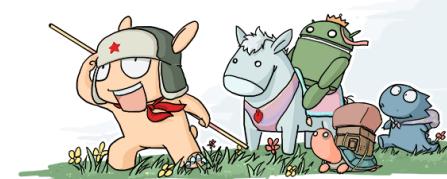


- 优点

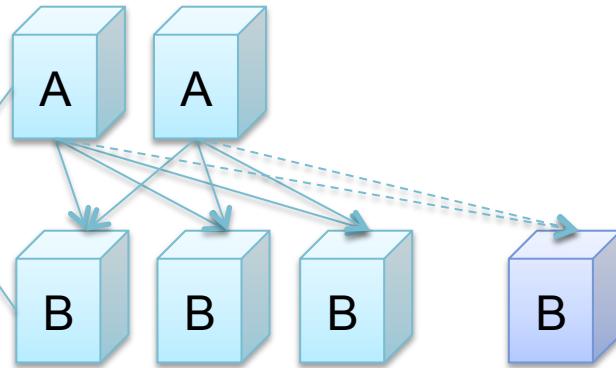
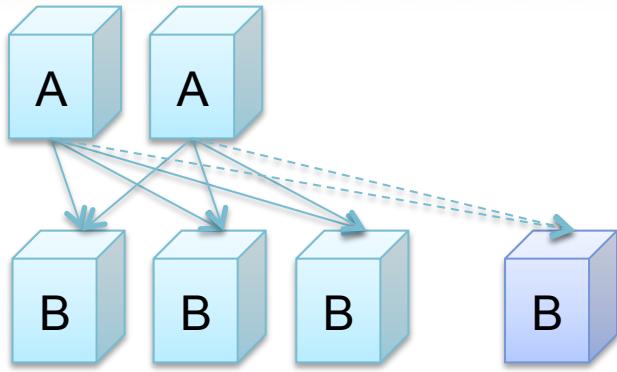
- 部署动作简单
- 不污染系统及其业务

- 问题

- root权限
- 公有、私有runtime



规范要求 – 解耦关联配置



- Naming 所做

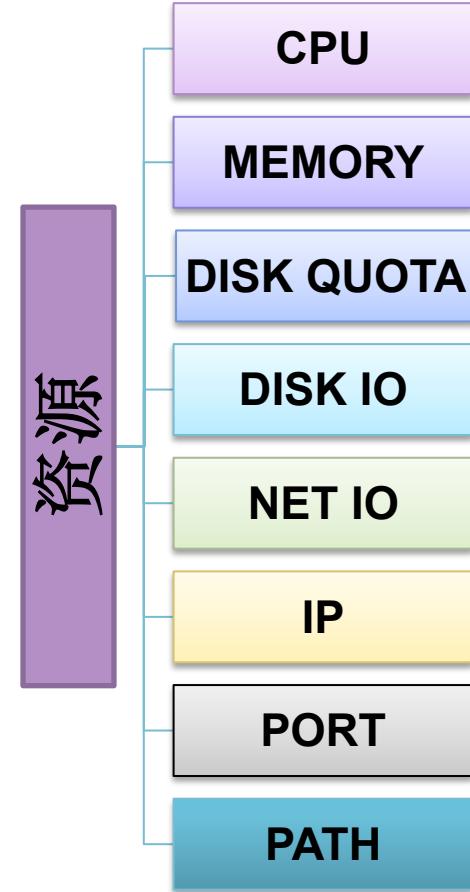
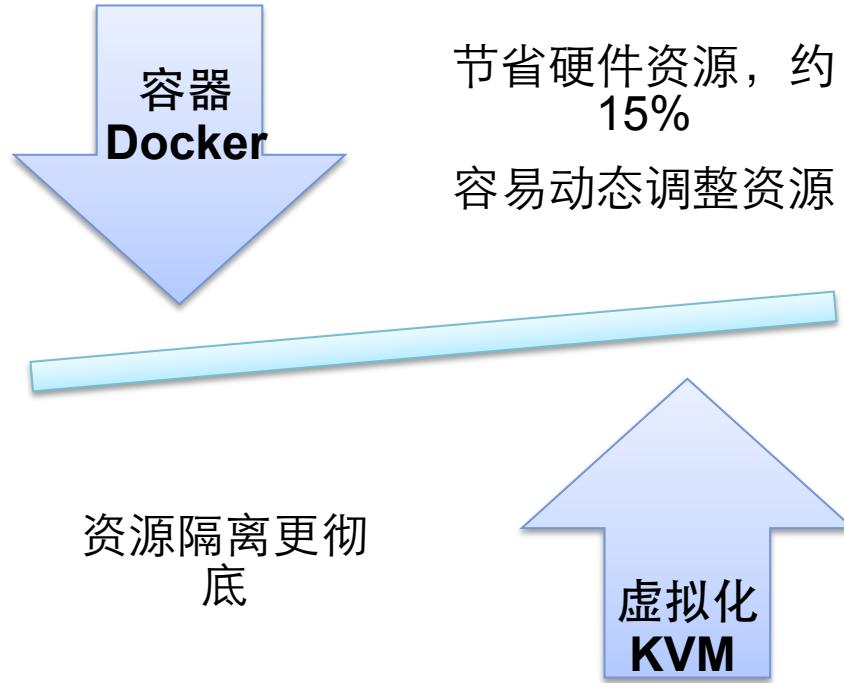
- 抽取连接类信息
- 树状结构
- 固定tag组合查询
- 区域化解析

- Naming 不做

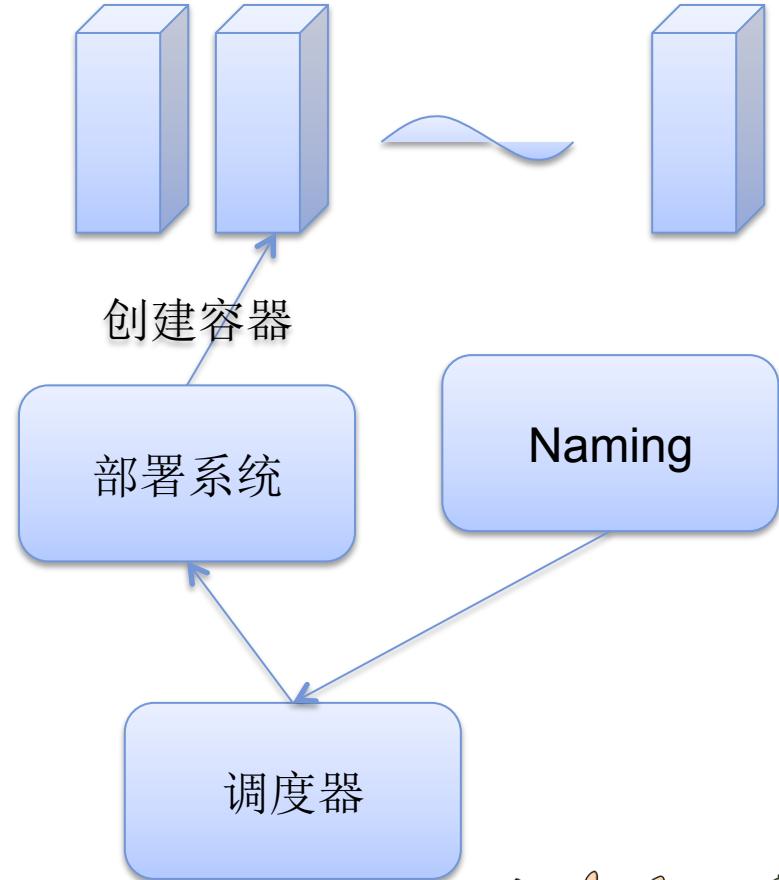
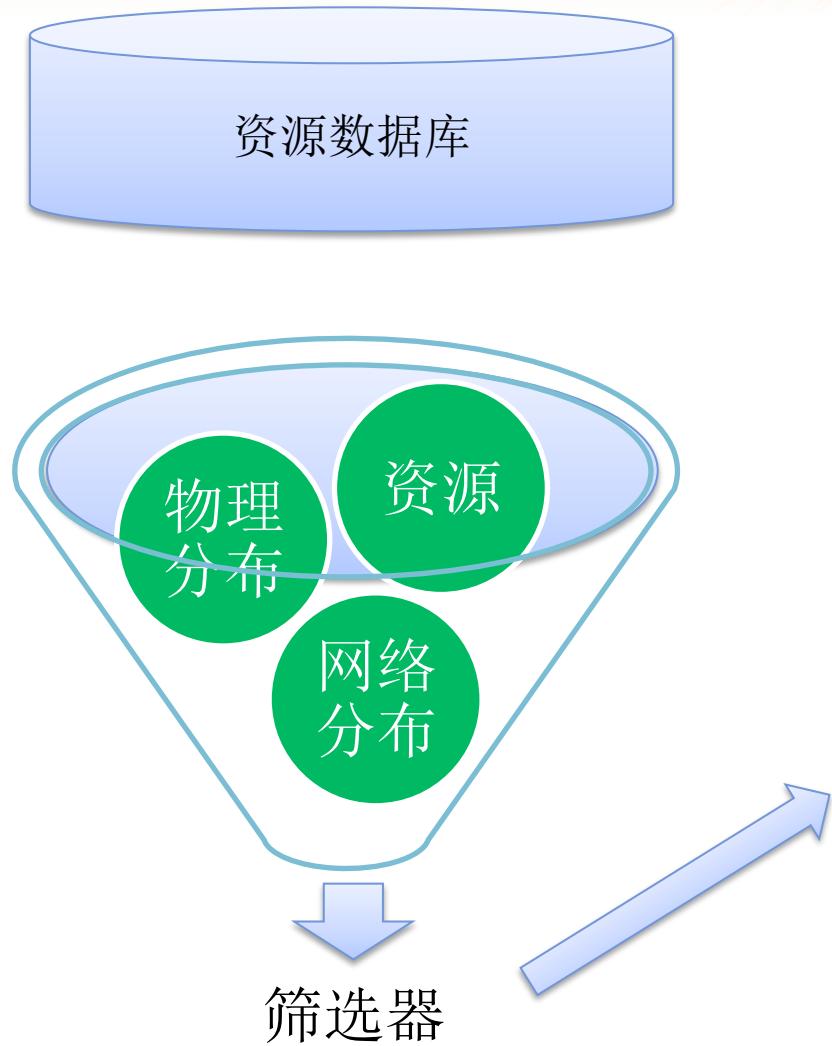
- 配置管理
- 实时通知



资源隔离



动态筛选、调度

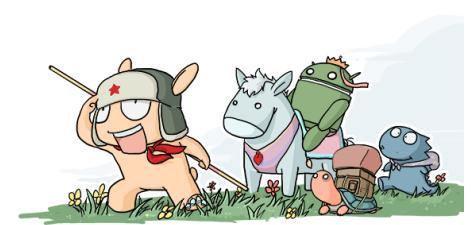


About Us



目标: noops

技术博客:<http://www.noops.me/>





Thanks!