

Machine learning in customized openstack workflow

机器学习在定制化openstack workflow中的运用

中国移动杭州研发中心



OpenStack在企业中的定制化与 workflow

我们的私有云架构

OpenStack定制化扩展

运营管理 workflow

机器学习在云 workflow 中的运用

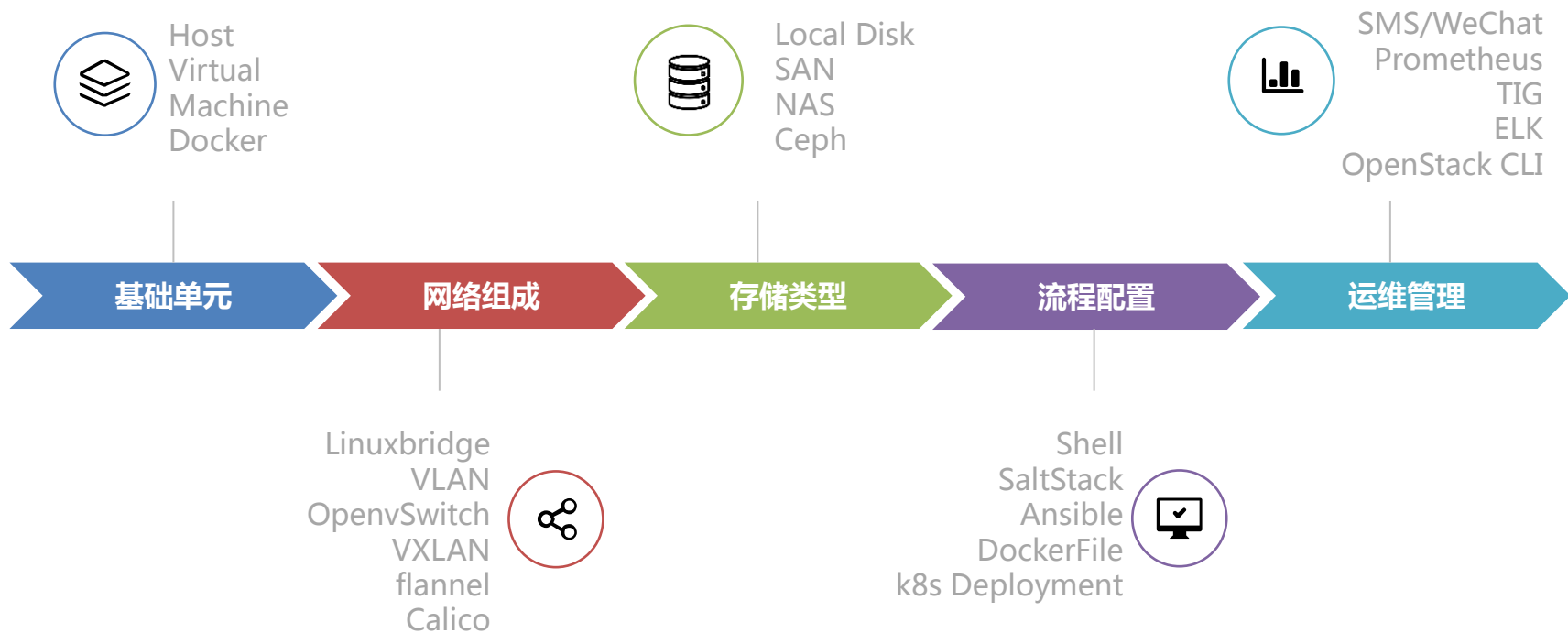
RNN-LSTM

计量数据/日志趋势

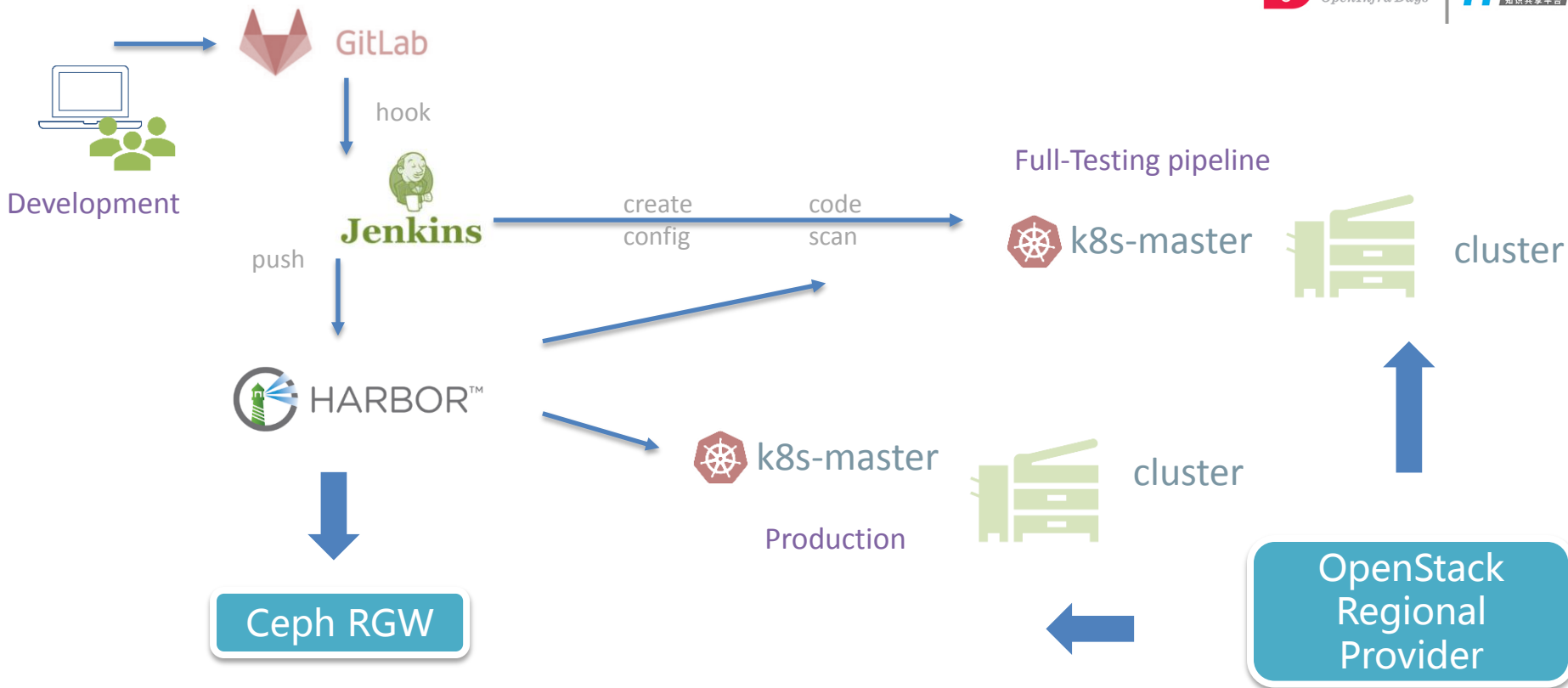
业务错峰

OpenStack在企业中的定制化与 workflow



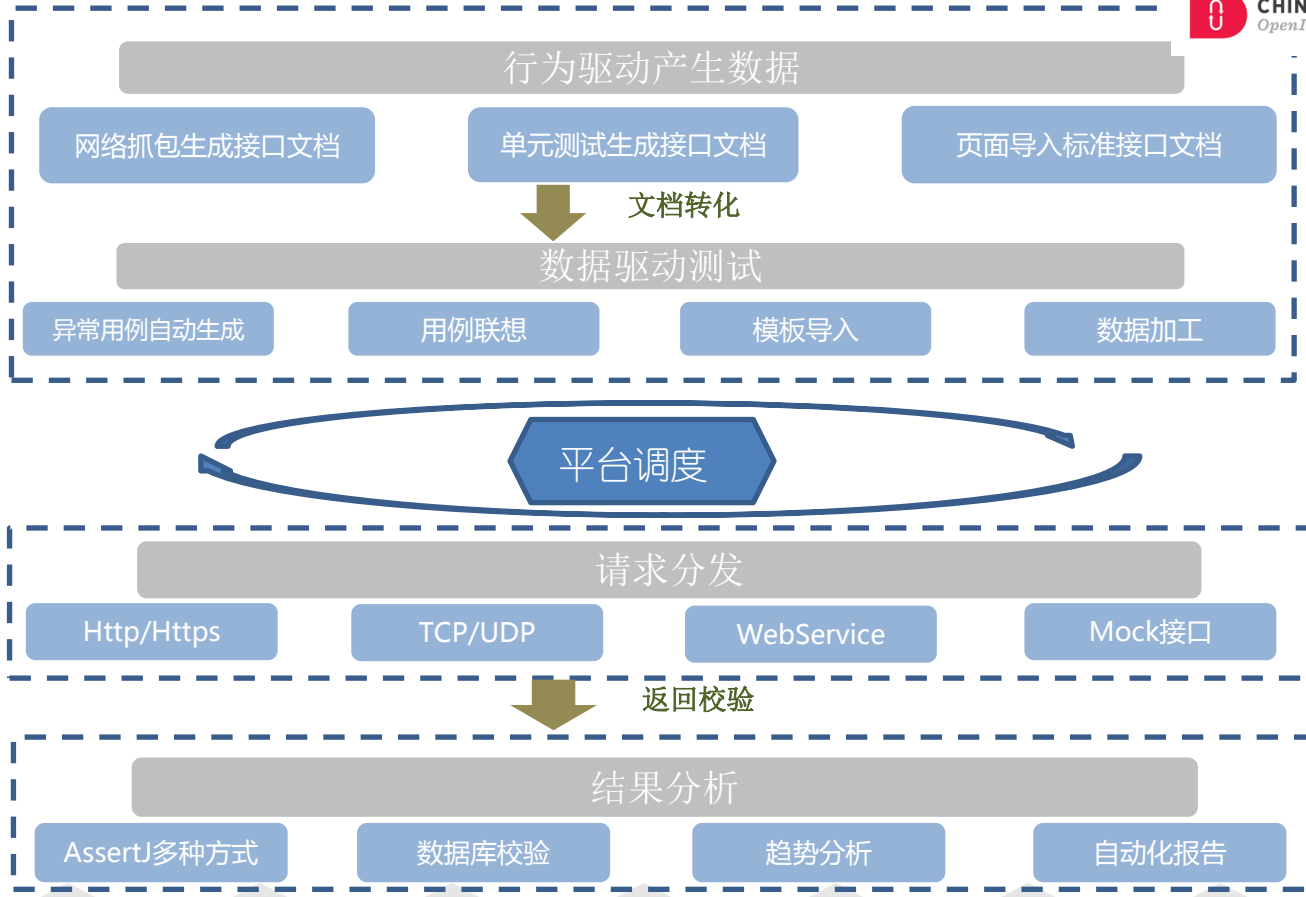




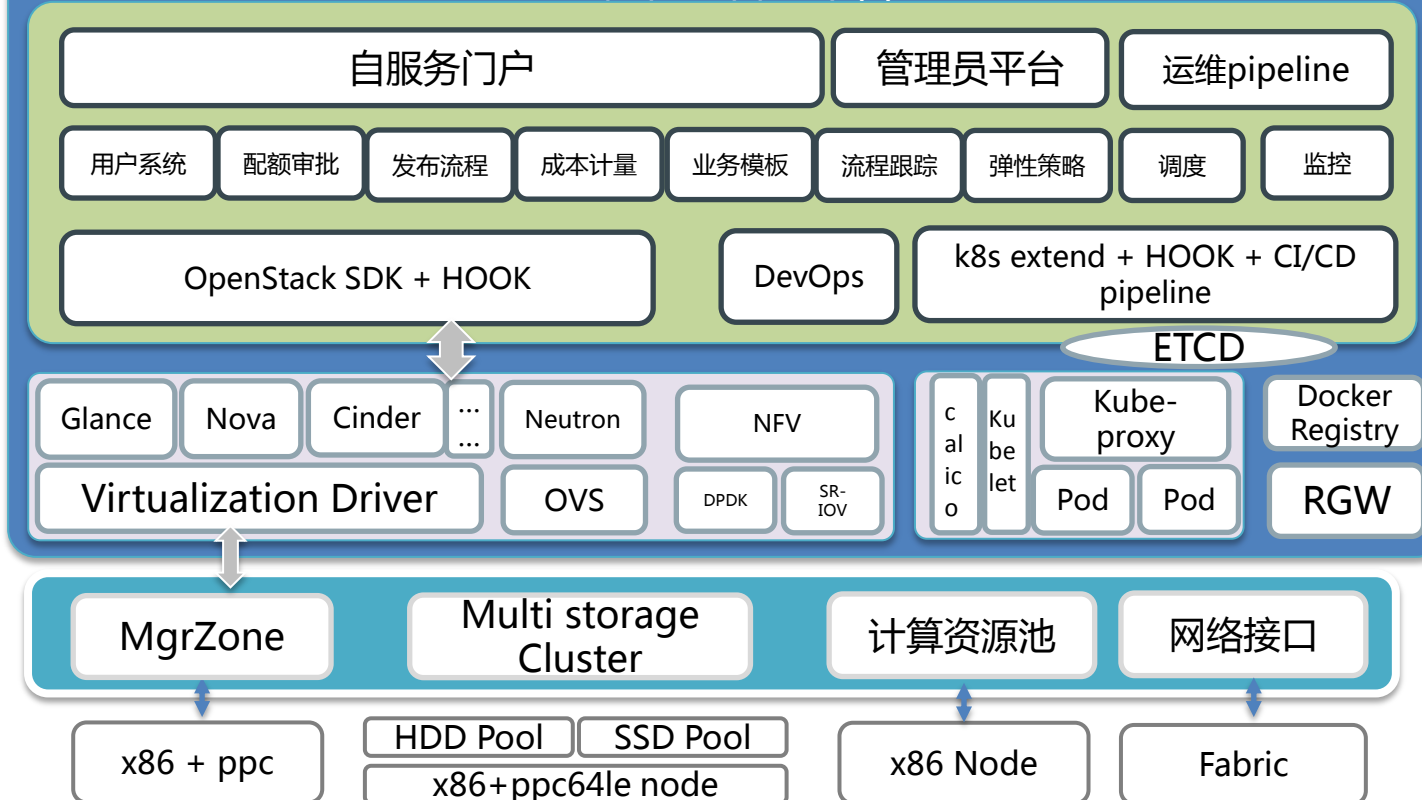


持续集成每日构建

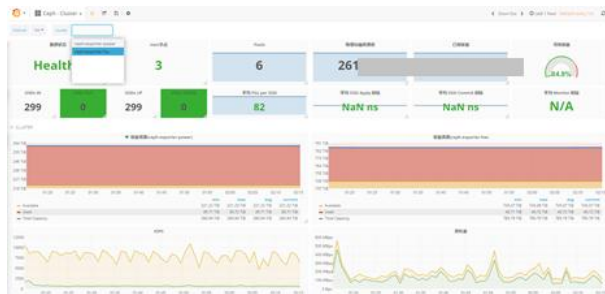
打通外部平台数据



私有云管理平台



Ceph-
Luminous



(On PPC64le , no docker image support)
3 mon + 3 mgr + x osd
mgr (1 active + x standbys)

module : [restapi + prometheus] run in docker , on any host
accessible to ceph cluster

Grafana Labs



prometheus



customized exporter

pool
1



pool
2

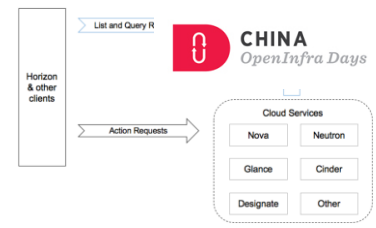
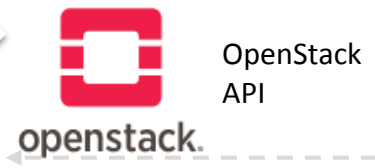
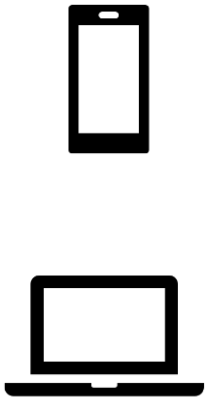


pool
3



```
ceph/daemon:tag-stable-3.0-  
luminous-centos-7  
restapi
```

```
binds: [ "ceph.conf:ceph.conf" ,  
"readonly.keyring:readonly.keyring" ]
```



response more slowly with cluster scale-out

read_only



elastic

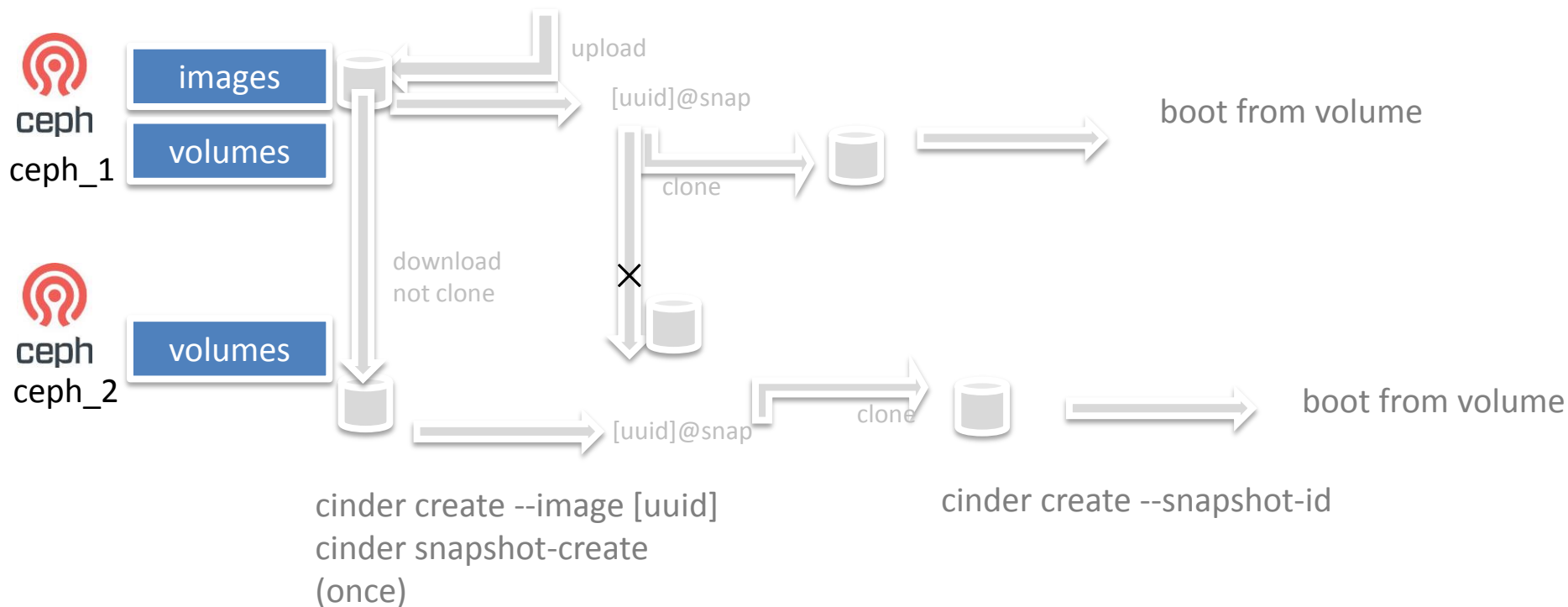
searchlight



Cloud cluster notification

glance image-upload
(define only one rbd store)

cinder create --image [uuid]



Web UI

研发测试

test region

regular perf az
high perf az

instance init hook



CI/CD hook



CI/CD pipeline

生产

production region

regular perf az
high perf az

instance init hook



4A API + security service

APM hook

LOG hook

SCAN API



login/op/event audit

FW/F5 API

机器学习在云 workflows 中的运用



Telemetry

libvirt api

ceilometer



gnocchi

天然多维训练数据集



Instance_exporter



prometheus

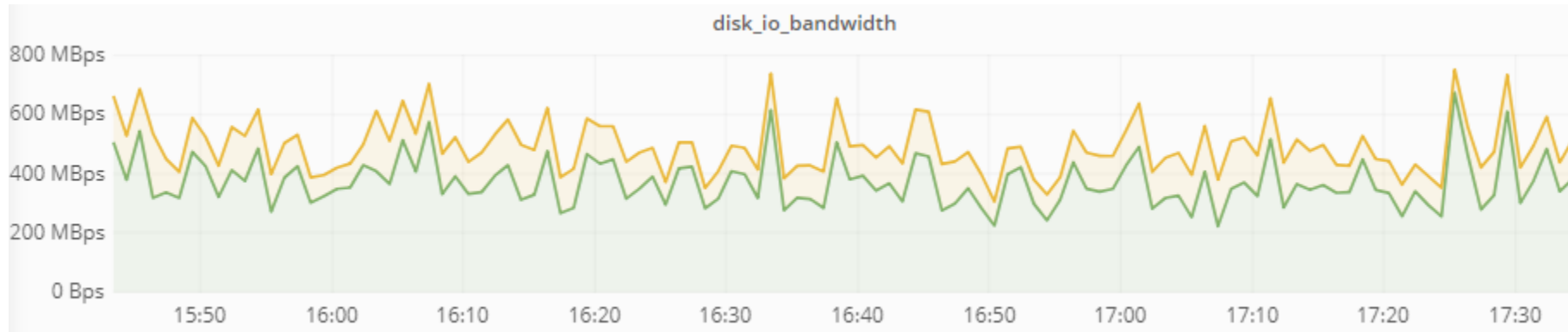
promql

更灵活的多维训练数据集



rbd du

First make it simple

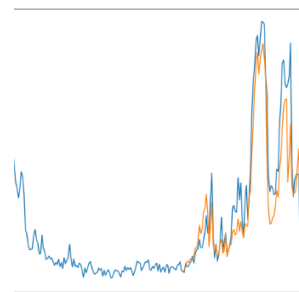


5min 200000+

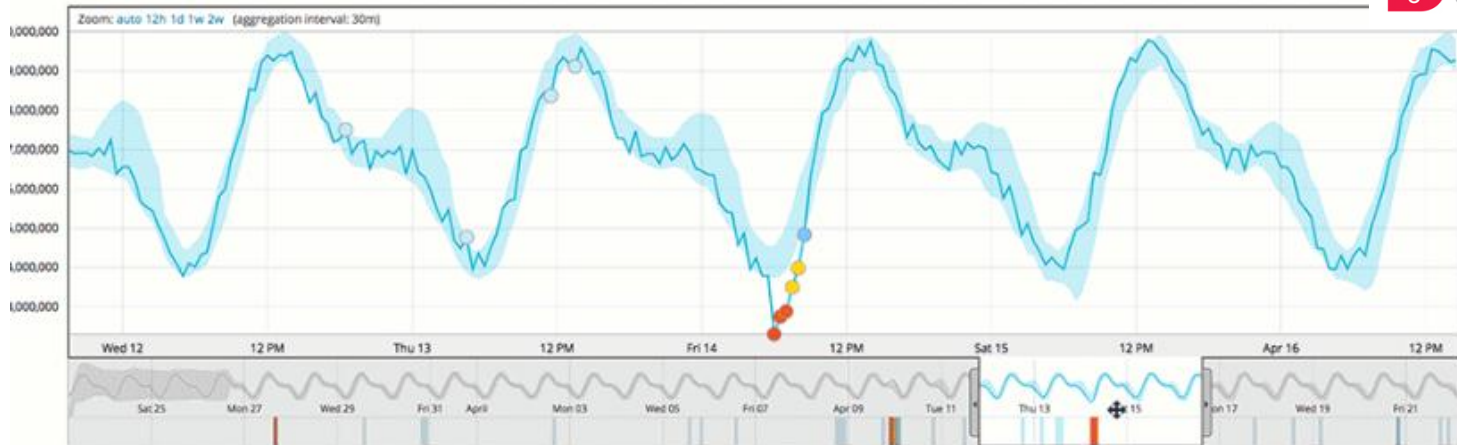
1h 17000+

24h 700+

分别训练拟合



实际反馈



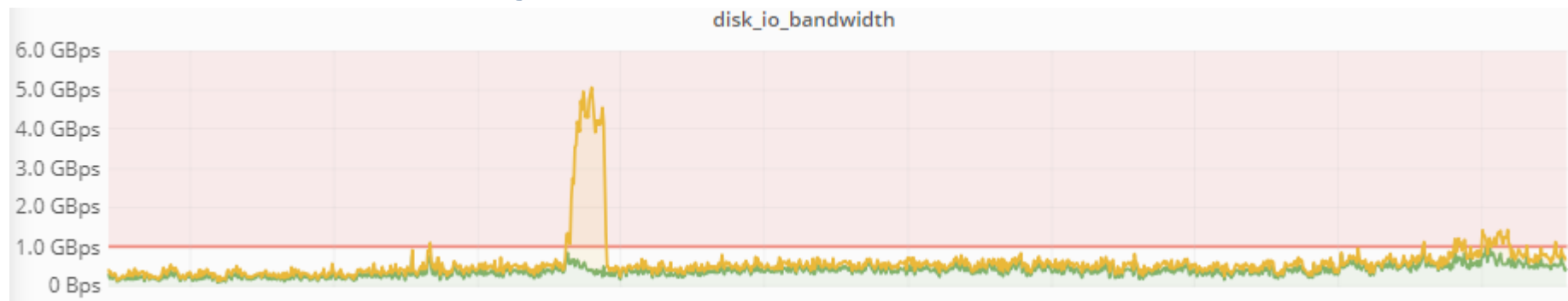
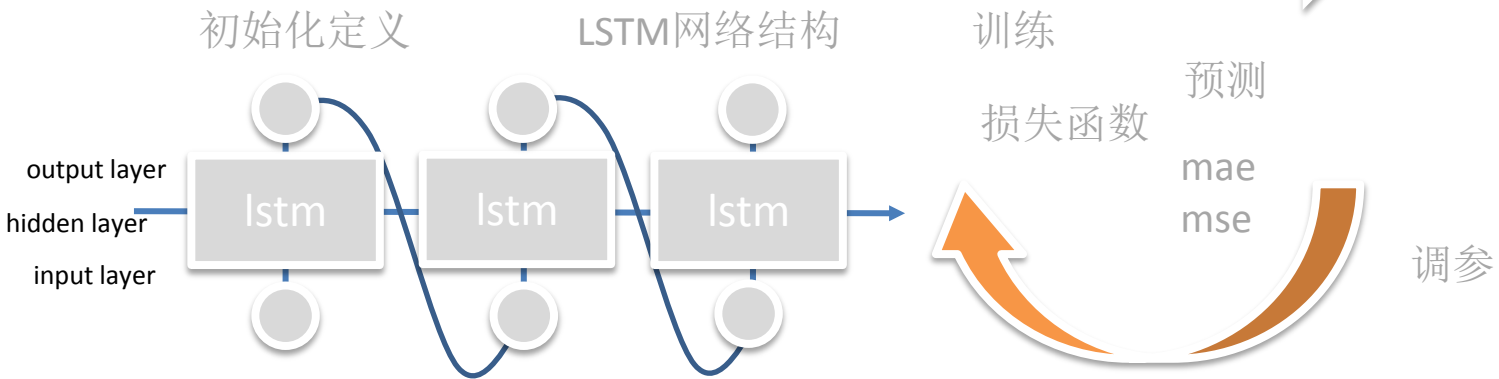
elasticsearch x-pack

无监督

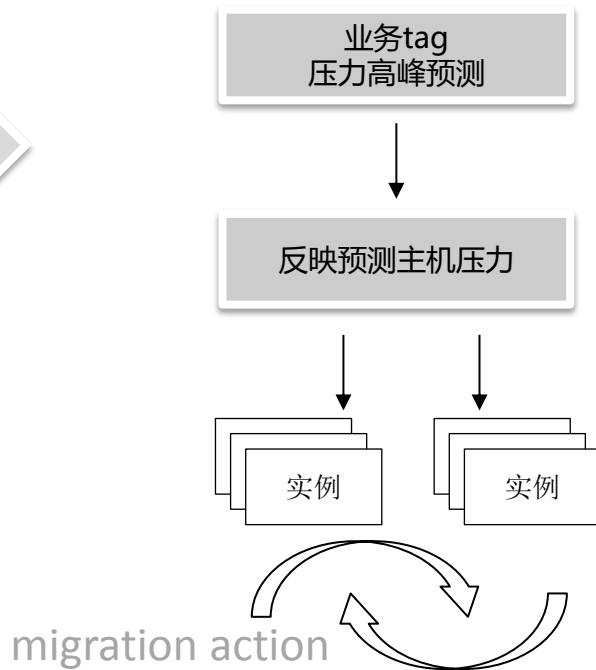
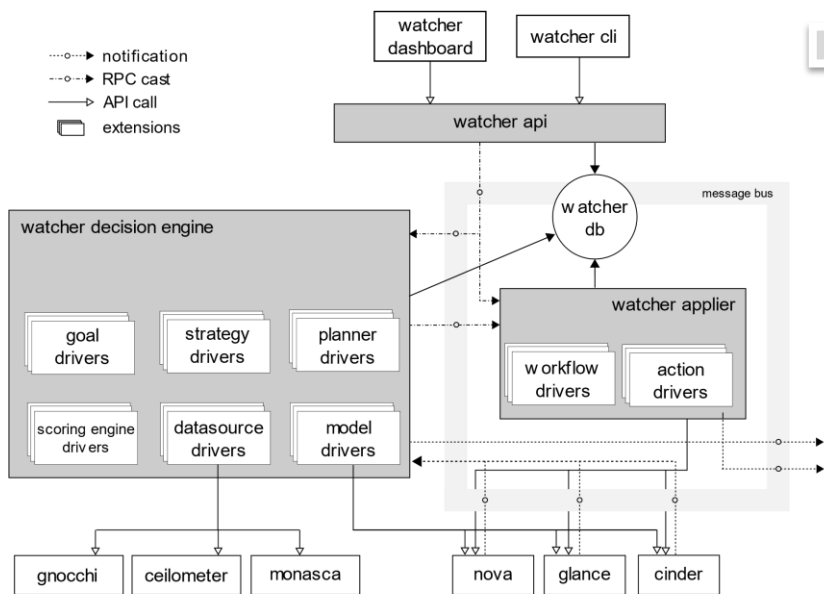
时间序列异常检测

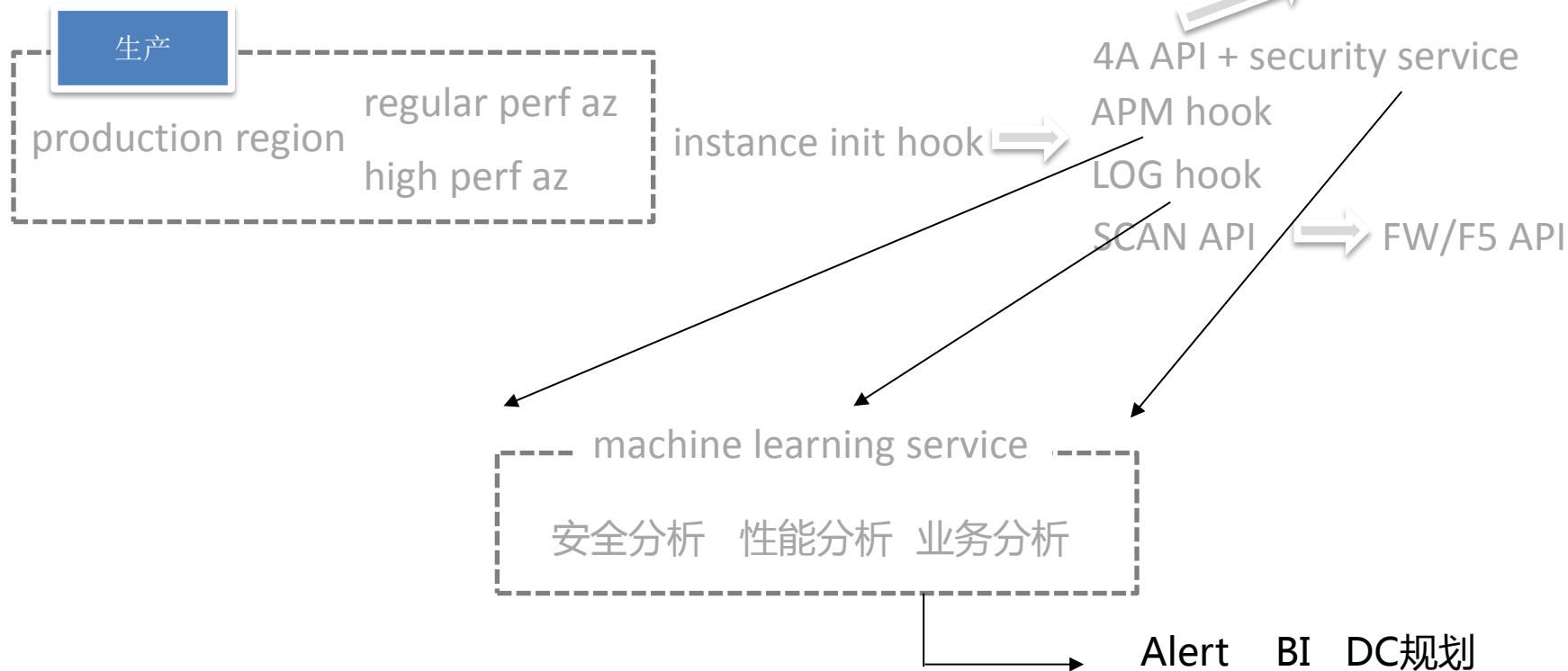


data
训练集
验证集



负载均衡 更好的利用资源





Thank You

