

Monitoring at Cloud Scale

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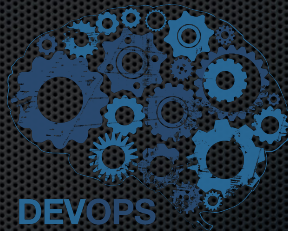
Julien Pivotto

- sysadmin @ inuits
- open-source defender for 7+ years
- devops believer
- @roidelapluie on twitter/github



What is that DevOps stuff again?

- Culture
- (*Lean*)
- Automation
- Measurement
- Sharing



Damon Edwards and John Willis



#monitoringsucks

- <https://github.com/monitoringsucks>
- a movement to find a solution to monitoring
- the feeling that monitoring is stucked in the past



#monitoringlove

- then it turned into #monitoringlove
- relevant tools exist
- they just need to be used
- following the unix philosophy

we are going to explore some of them



What is different in the cloud?

- Scale
- Velocity
- More changes, more often



What do you need?

- scalability
- automation



time for retirement

- forget all-in-one tools
- forget auto-discovery tools
- forget non-scalable tools
- forget tools you can not automate



forget about. . .

<http://www.flickr.com/photos/mourner/150844753/>



Zabbix



forget about. . .

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Centreon



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GroundWork



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Hyperic



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BigBrother



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Munin



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Zenon



Your infrastructure today

<http://www.flickr.com/photos/bjbrake/235217140/>



Your infrastructure tomorrow

<http://www.flickr.com/photos/bjbrake/235217140/>



Your infrastructure in 6 months

<http://www.flickr.com/photos/bjbrake/235217140/>



Challenges

- Reproducibility
- Speed
- Metrics
- Orchestration



WANTED

<http://www.flickr.com/photos/pagedooley/3124443099/>



- Small tools
- Collect / Mangle
- Analyse / Act
- Visualize



WANTED

The UNIX philosophy



Automation

- One source of trust: puppet, chef, ...
- Exported resource
- Monitor in the same location you deploy
- Infrastructure-as-Code
- no autodiscovery tools



Automation

If it is not automated || not monitored
then it does not exist!



Collectd

- Statistics collection daemon
- A lot of plugins available...
- Can send data to graphite
- Simple configuration



Collectd plugins

<http://www.flickr.com/photos/juhansonin/3141561416/>



Collectd plugins

AMQP Apache APC_UPS Apple_Sensors Ascent Battery BIND Carbon
ConnTrack ContextSwitch CPU CPUFreq CSV cURL cURL-JSON cURL-XML
DBI DF Disk DNS E-Mail Entropy Exec FileCount FSCache GenericJMX
gmond HDDTemp Interface IPMI IPTables IPVS IRQ Java libvirt Load
LogFile LPAR MadWifi MBMon memcachec memcached Memory Modbus
Monitorus Multimeter MySQL NetApp Netlink Network NFS nginx
Notify_Desktop Notify_Email NTPd NUT olsrd OneWire OpenVPN OpenVZ
Oracle Perl Pinba Ping PostgreSQL PowerDNS Processes Protocols Python
Redis RouterOS RRDCached RRDtool Sensors Serial SNMP Swap SysLog
Table Tail Tape TCPConns TeamSpeak2 TED thermal TokyoTyrant UnixSock
Uptime Users UUID Varnish vmem VServer Wireless XMMS
Write_Graphite Write_HTTP Write_MongoDB
Write_Redis Write_Riemann ZFS_ARC



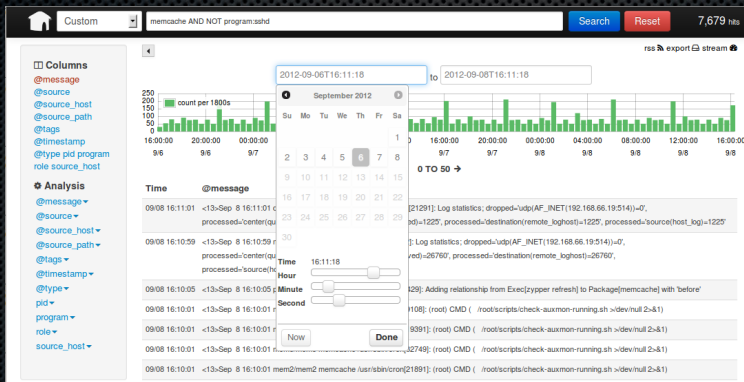
Logstash

- Ship logs from any source
- Filter them
- Index them
- Search them
- Backed with elasticsearch



Kibana

<http://kibana.org/images/screenshots/searchcss.png>



Statsd

- Stats aggregation
- Simple counters
- Flushes every XX seconds to graphite
- UDP



Statsd

```
echo "stats.sshd.login:1|c" | nc -u statsd.example.com 8125
```



Graphite

- Graphing
- A lot of helpers functions
- Listen on UDP and TCP

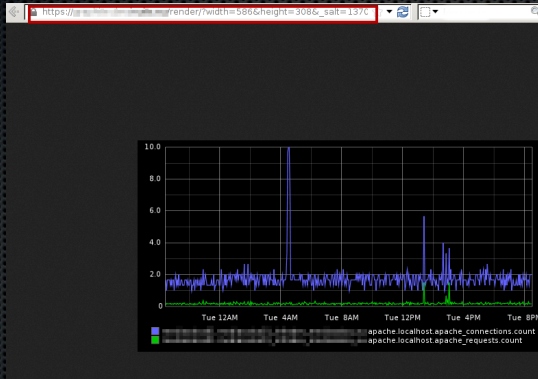


Send data to graphite

```
echo "stats.sshd.login 1 $(date +%s)" | nc -u graphite.example.com 2003
```

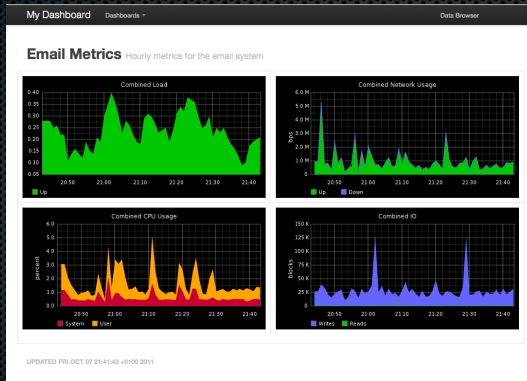


Graphite API



gdash

<https://github.com/ripienaar/gdash>



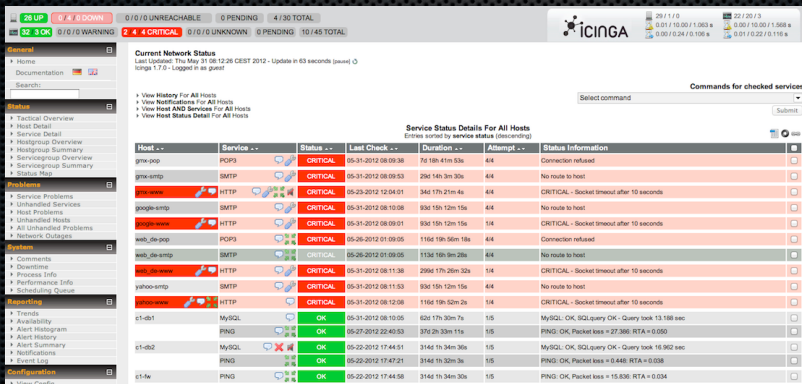
Icinga

- Fork of nagios
- Large and vibrant community
- Configuration compatible with nagios
- User-friendly interface
- Use Icinga Classic!



Icinga

<https://icinga.org>



Toolchain from apache to nagios

- Apache ships logs to rsyslog
- Rsyslog ships logs to logstash
- Logstash ships metrics to statsd
- Statsd ships metrics to Graphite
- Icinga query metric from graphite
- https://github.com/etsy/nagios_tools



Reusing Icinga/Nagios perfdata

- Icinga performs various checks
- Icinga sends perfdata to graphite
- Graphite stores the data
- Gdash serves them inside dashboards
- <https://github.com/roidelapluie/icinga-to-graphite>



The metrics

- Everything can become a metric
- Performance metrics
- Usage metrics
- Business-valuable metrics
- People metrics
- Metrics are knowledge



Metrics that matter

<http://codeascraft.com/2011/02/15/measure-anything-measure-everything/>



Good tools exist

- We have seen only open-source software
- Small, pluggable daemons
- Robust solutions
- Nice & user-friendly output
- They play together
- Plenty of other solutions I do not know



Try them yourself

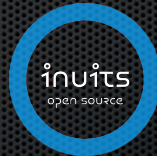
<https://github.com/KrisBuytaert/vagrant-graphite>

<https://github.com/KrisBuytaert/vagrant-puppet-logstash>



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