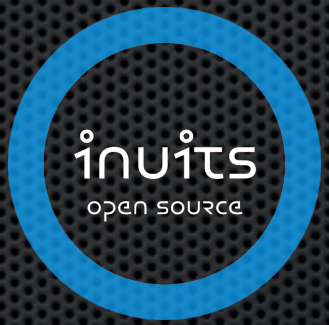
# Monitoring at Cloud Scale

Julien Pivotto




Build a cloud Day Amsterdam

June 13th, 2013

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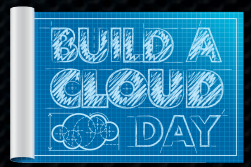
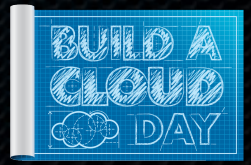


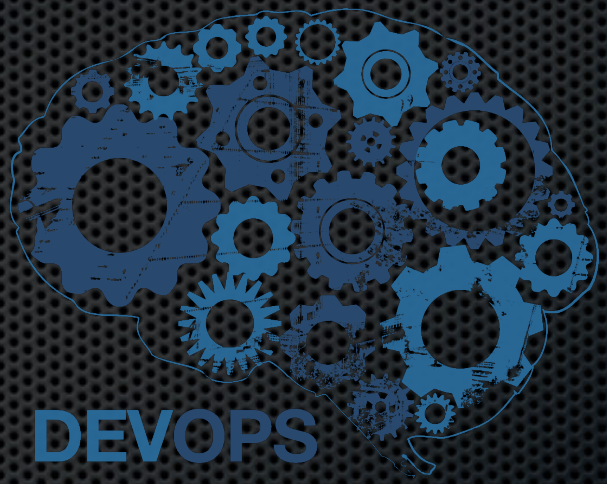
# Julien Pivotto

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



# What is that DevOps stuff again?

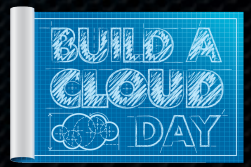
- Culture
- *(Lean)*
- Automation
- Measurement
- Sharing




*Damon Edwards and John Willis*

# #monitoringsucks

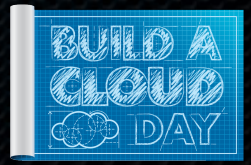
- https://github.com/monitoringsucks
- a movement to find a solution to monitoring
- the feeling that monitoring is stucked in the past



# #monitoringlove

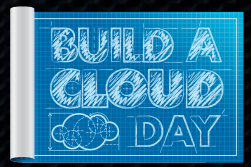
- then it turned into #monitoringlove
- relevant tools exist
- they just need to be used
- following the unix philosophy

*we are going to explore some of them*



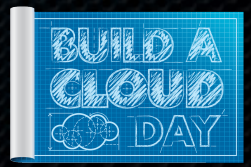
# What is different in the cloud?

- Scale
- Velocity
- More changes, more often



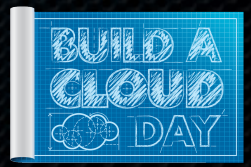
# What do you need?

- scalability
- automation



# time for retirement

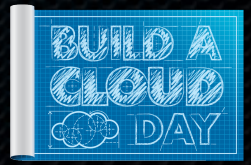
- forget all-in-one tools
- forget auto-discovery tools
- forget non-scalable tools
- forget tools you can not automate



# forget about...

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

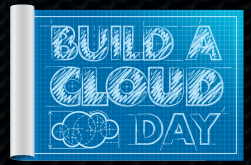
# Zabbix



# forget about. . .

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

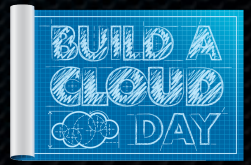
Centreon



# forget about. . .

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

GroundWork



# forget about. . .

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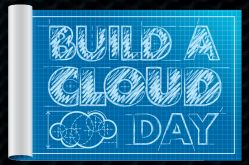
Cacti



# forget about. . .

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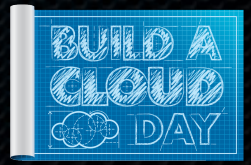
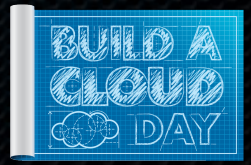
Hyperic



# forget about. . .

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

# BigBrother



# forget about. . .

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

# Munin

# forget about. . .

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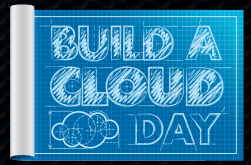
Zenoss



# Your infrastructure today

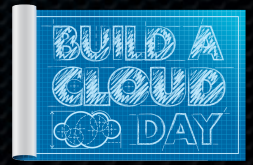
http://www.flickr.com/photos/bjbrake/235217140/

# Your infrastructure tomorrow

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

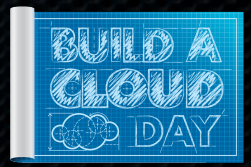
# Your infrastructure in 6 months

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



# Challenges

- Reproducability
- Speed
- Metrics
- Orchestration



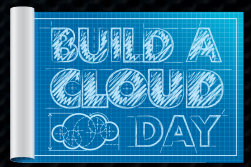
# WANTED

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


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

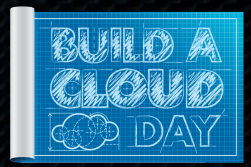
# WANTED

## The UNIX philosophy



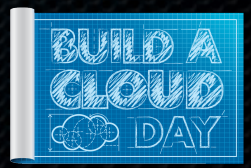
# Automation

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



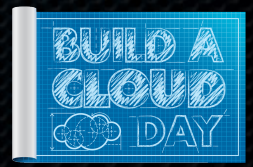
# Automation

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



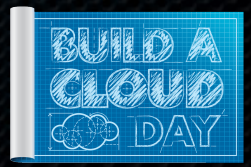
# Example in puppet

- Create a definition for your application
- In that definition, add the configuration, the vhosts...
- Then export the monitoring (@@icinga_service)
- In bonus you can export DB configuration, etc...
- Use only the "meta" definition
- Collect the exported ressources (Nagios_service <||>)



# Collectd

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

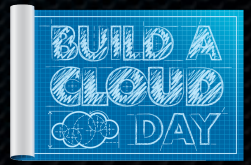


# Collectd plugins

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

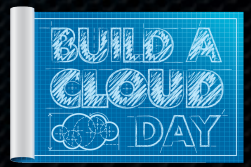
# Collectd plugins

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



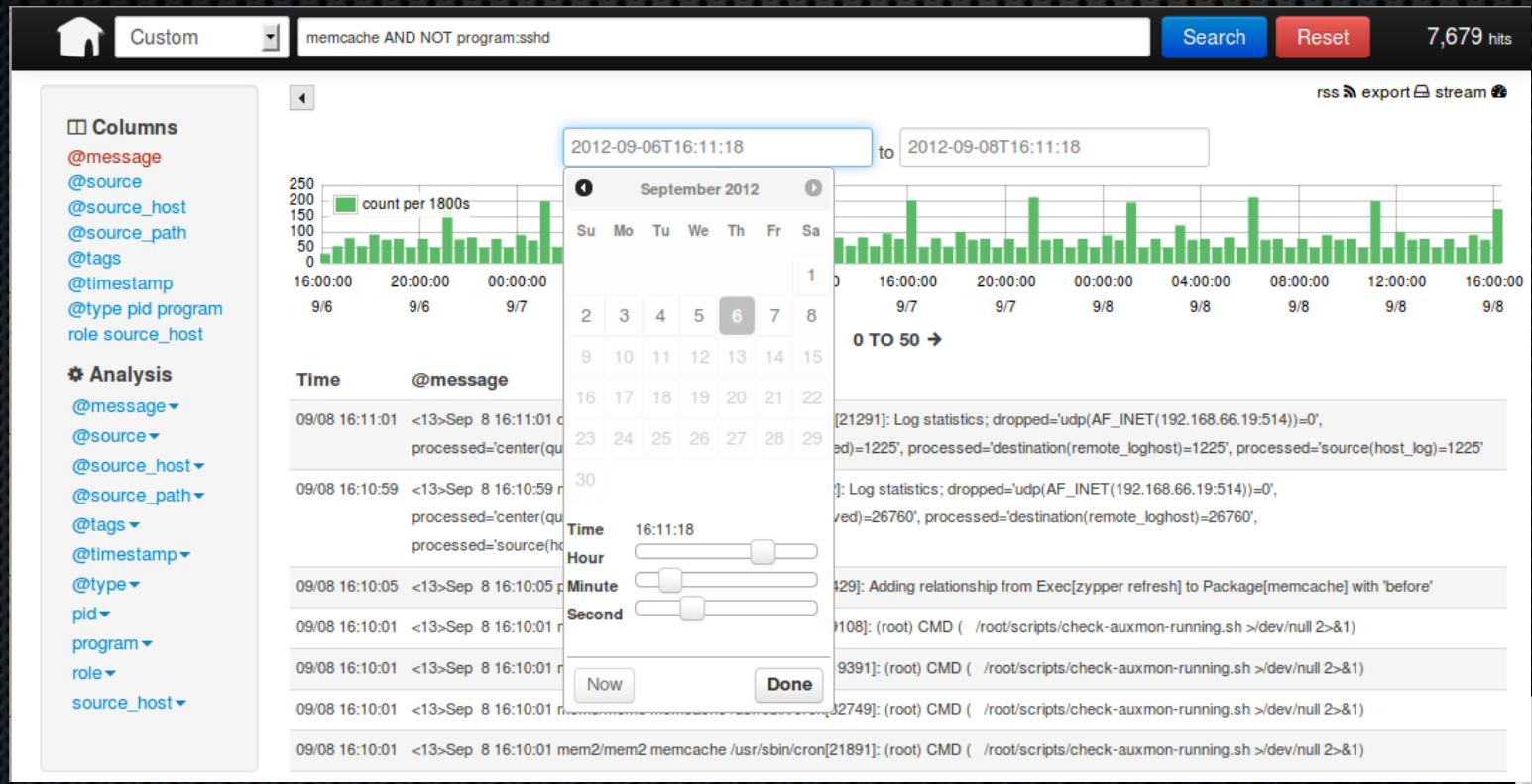
# Logstash

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



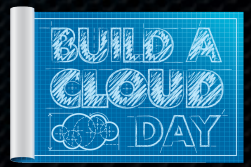
# Kibana

http://kibana.org/images/screenshots/searchss.png



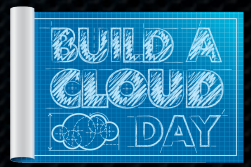
# Statsd

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



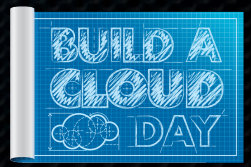
# Statsd

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



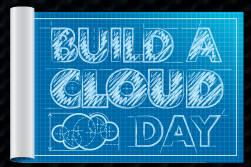
# Graphite

- Graphing made simple
- A lot of helpers functions
- Listening on UDP and TCP
- Text over UDP/TCP



# Send data to graphite

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



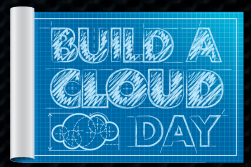
# Graphite API

# gdash

https://github.com/ripienaar/gdash

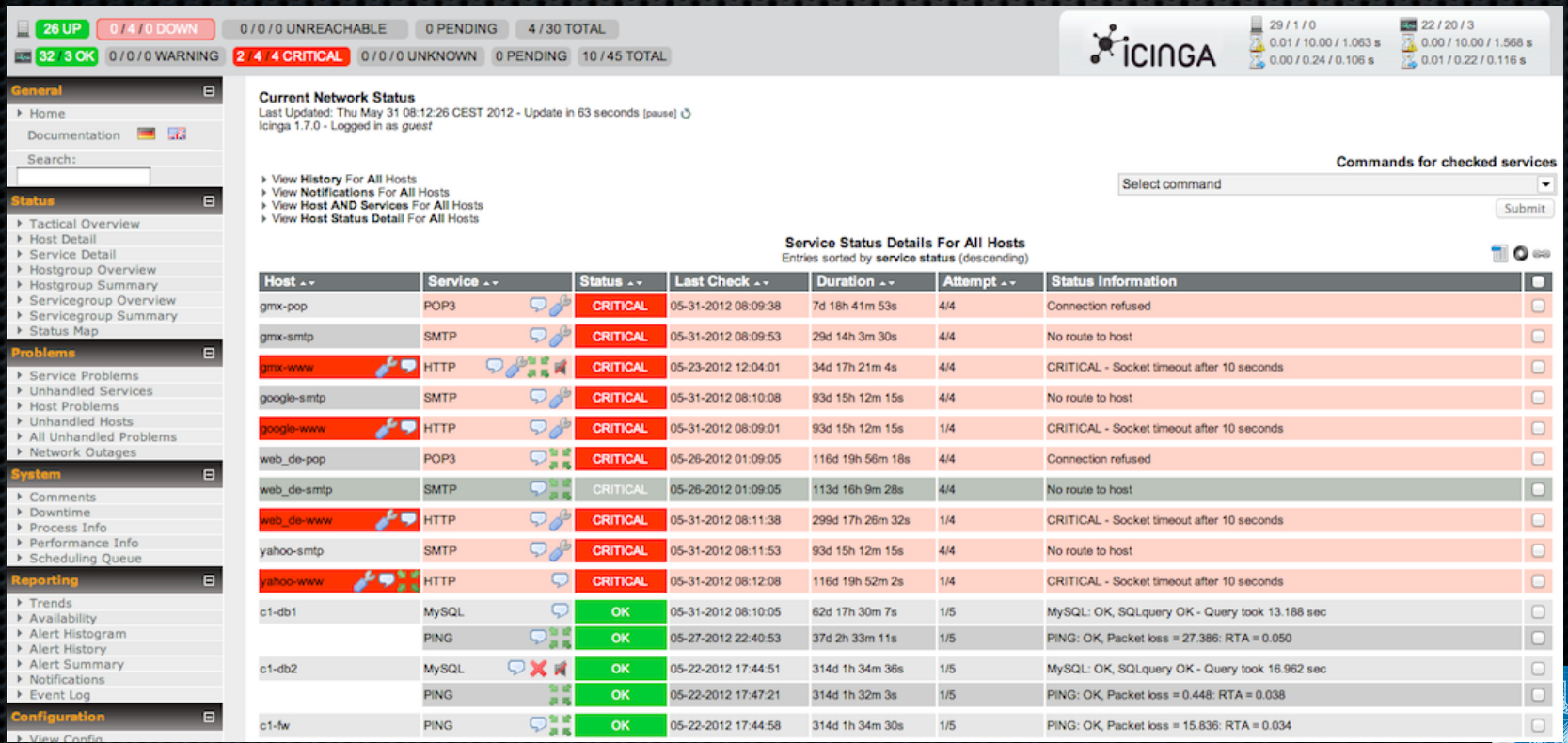
# Icinga

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



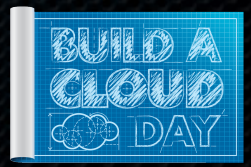
# Icinga

https://icinga.org



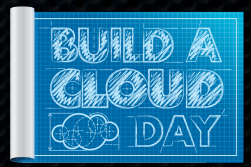
# Toolchain from apache to nagios

- 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



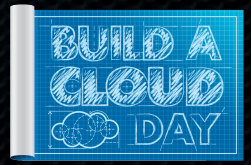
# Reusing Icinga/Nagios perfdata

- 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

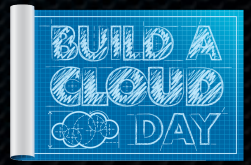


# Metrics that matter

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

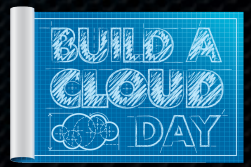
# What have we seen?

- We have seen only open-source software
- Small, pluggable daemons
- Robust solutions
- Nice & user-friendly output
- They play together



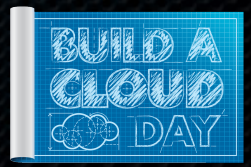
# Homework

- Sensu
- Riemann
- dashing
- ExtreMon
- Esper
- Skyline
- Oculus



# Try them yourself

https://github.com/KrisBuytaert/vagrant-graphite
https://github.com/KrisBuytaert/vagrant-puppet-logstash



# Contact

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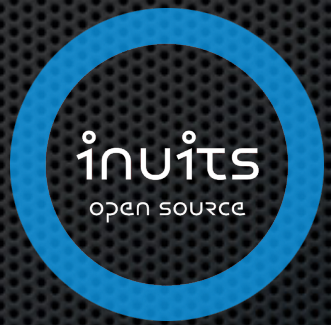


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