

GSCAN



OVH

Innovation is Freedom



We ping every OVH IPs every few seconds from different sources and we analyse the results to get a near realtime view of the state of the network.

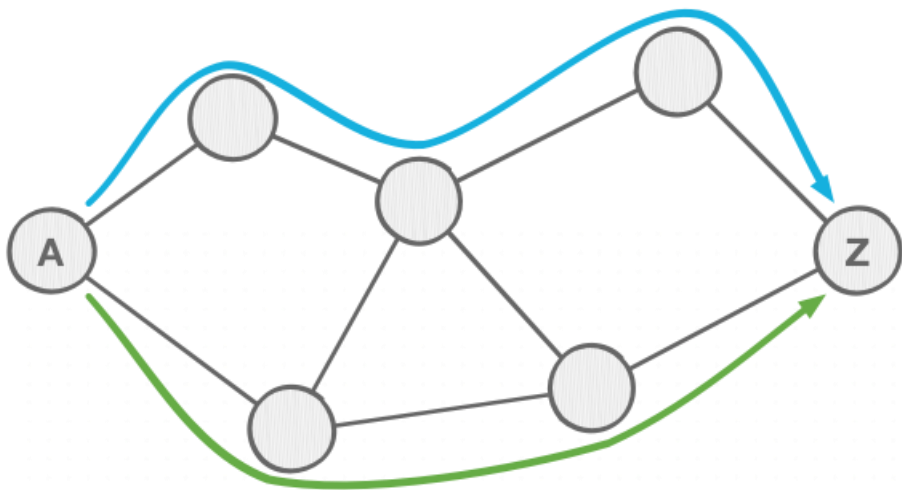
Ping 5 million IPs in less than 5 seconds



- Golang / Gopacket
- PF_RING_ZC (www.ntop.org)
- INTEL ReceiveSideScaling
- Hardware timestamps

- Tricks to avoid context switches :
 - IRQ routing : `/proc/irq/X/smp_affinity`
 - Lock goroutine to thread : `runtime.LockOSThread()`
 - Lock thread to core : `syscall SCHED_SETAFFINITY`

Explore different paths



Today :

- DSCP + Policy Based Routing

Tomorrow :

- Segment Routing

2i-ip
OVH Globalip web interface

188.165.234.181

Root
All networks

Public Ips
Managing Public IPV4 Ips

188.165.0.0/16
AS16276 RIPE OVH [2009-0

188.165.192.0/18
(/18) : serveurs dédiés

188.165.234.181

IP
188.165.234.181

Routed To
ns3021139.jp-188-165-234.eu

Service
l1::Service#44149142

Label

Nics
ca471837-sys

Tags

infra/room = rbx3_42 infra/datacenter = rbx3 network/router = vss-3/3b-6k infra/rack = 42F10 network/switch = 188.165.234.248

network/vlan = 550_vss-3/3b-6k

Add Tag
tag

Inherited tags from my parents
global/projects = dedicated

Creation date
2016-12-30 03:36:58+01

Update date
2016-12-30 03:36:58+01

State
ok

Type
dedicated

Splitting

Country

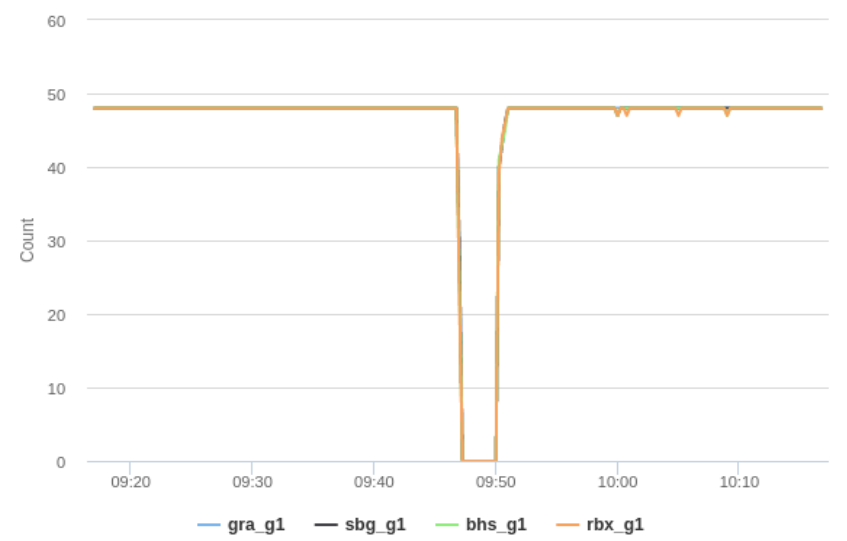
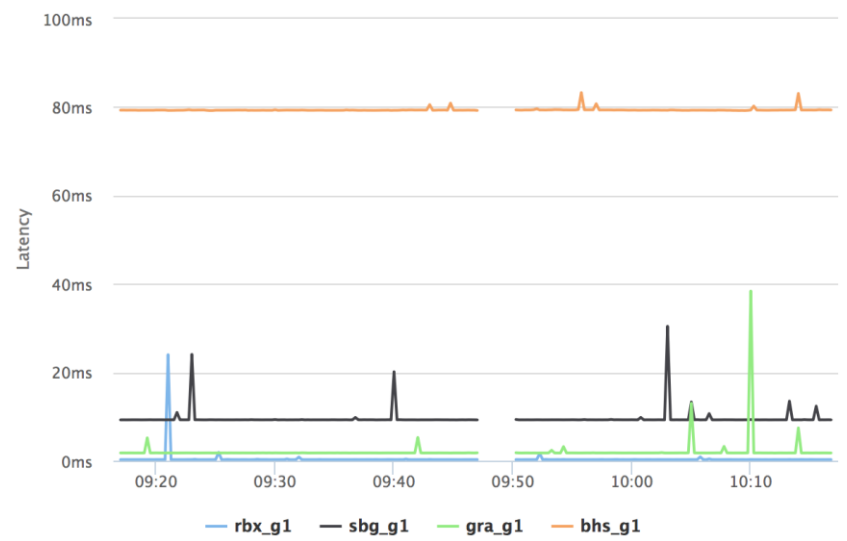
RIR

Cancel Delete Commit

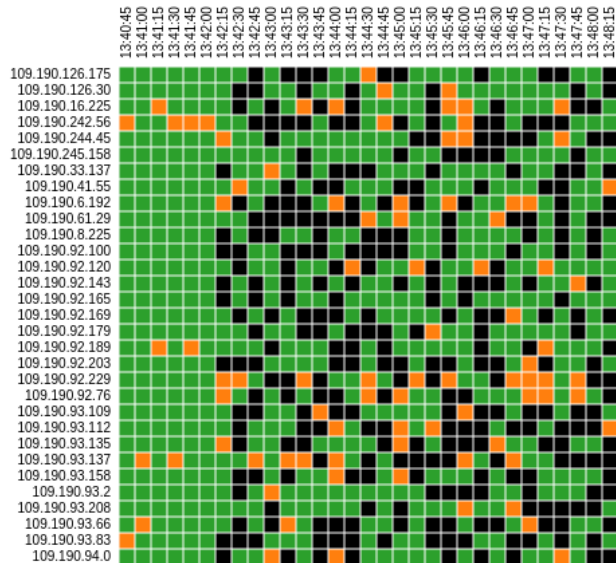
2,000,000 IPs
800,000 Distinct Tags

Zone	Type
City	Service
Datacenter	Project
Room	Cluster
Rack	Customer
Router	Provider
Vlan	NRA
Switch	Dslam
Fex	...

BREAKDOWN

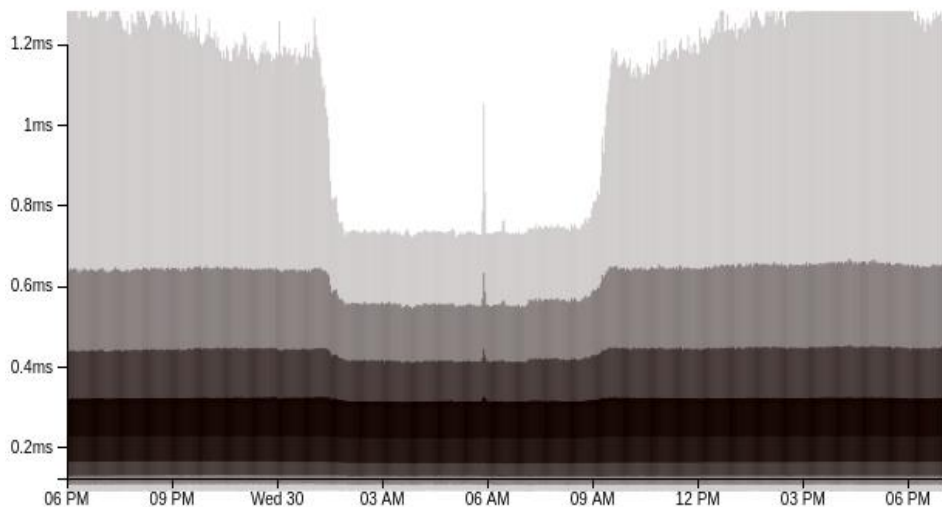


LOSS

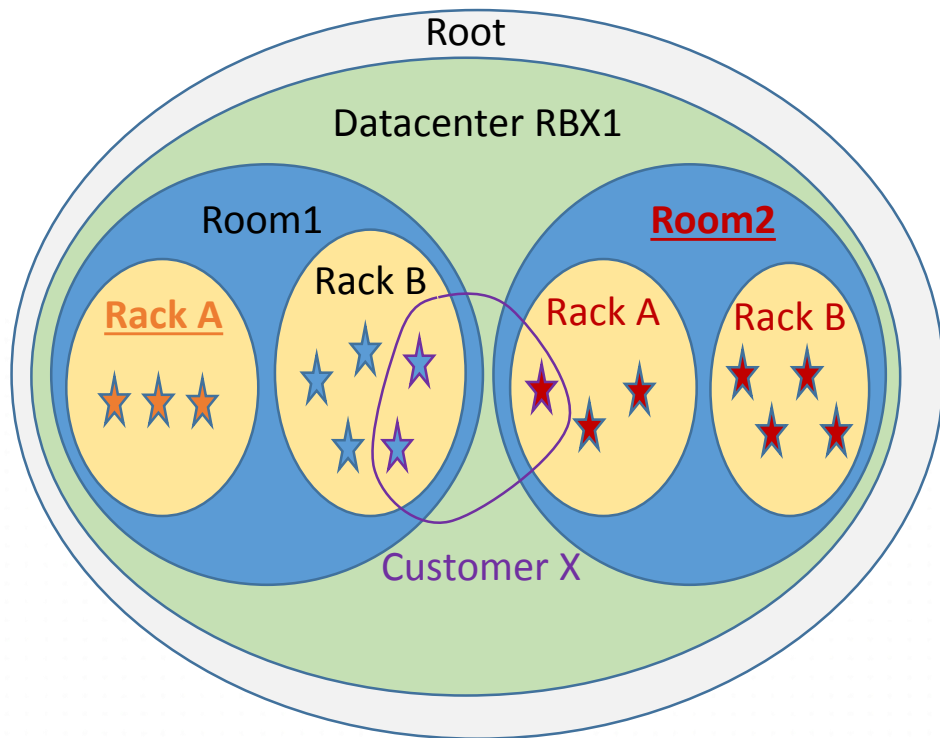


ok / high latency / timeout

LAG



Root Cause Analysis



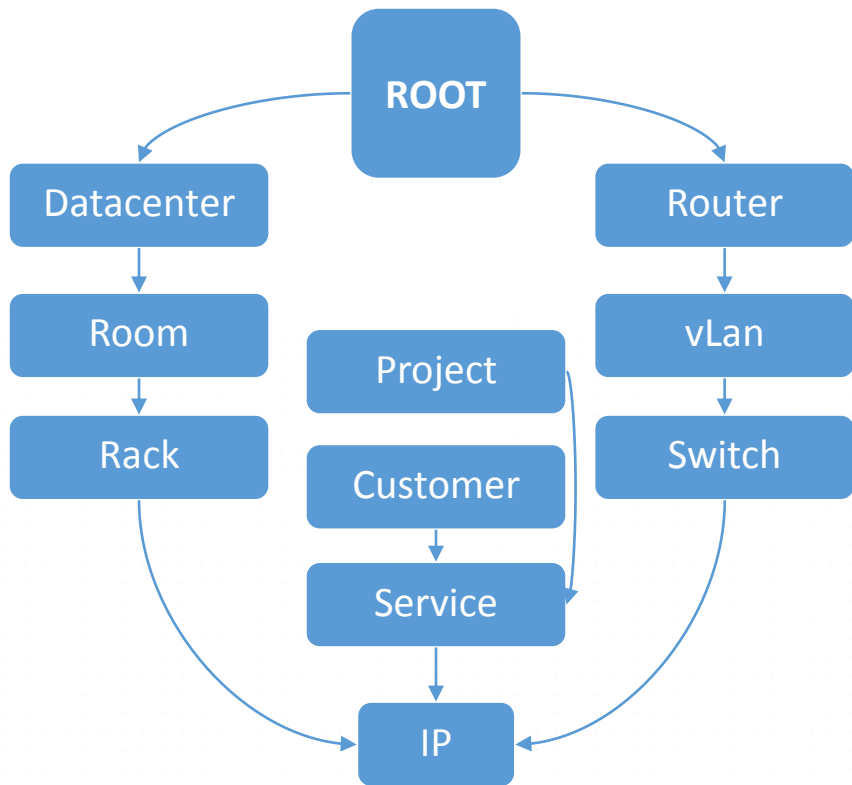
« Search the best set of tags that covers the detected anomalies »

- Hypergraph vertex cover domain
- Problem is known to be **NP-hard**

Map IP => SET<TAG>

Map TAG => SET<IP>

Root Cause Analysis



BREAKDOWN : switch 5.135.153.248
 Date : 30/08/2017 10:12:45
 Scans : sbg_g1,rbx_g1,gra_g1,bhs_g1
 Impacted ips : 41 / 41
 Impacted nics : 42

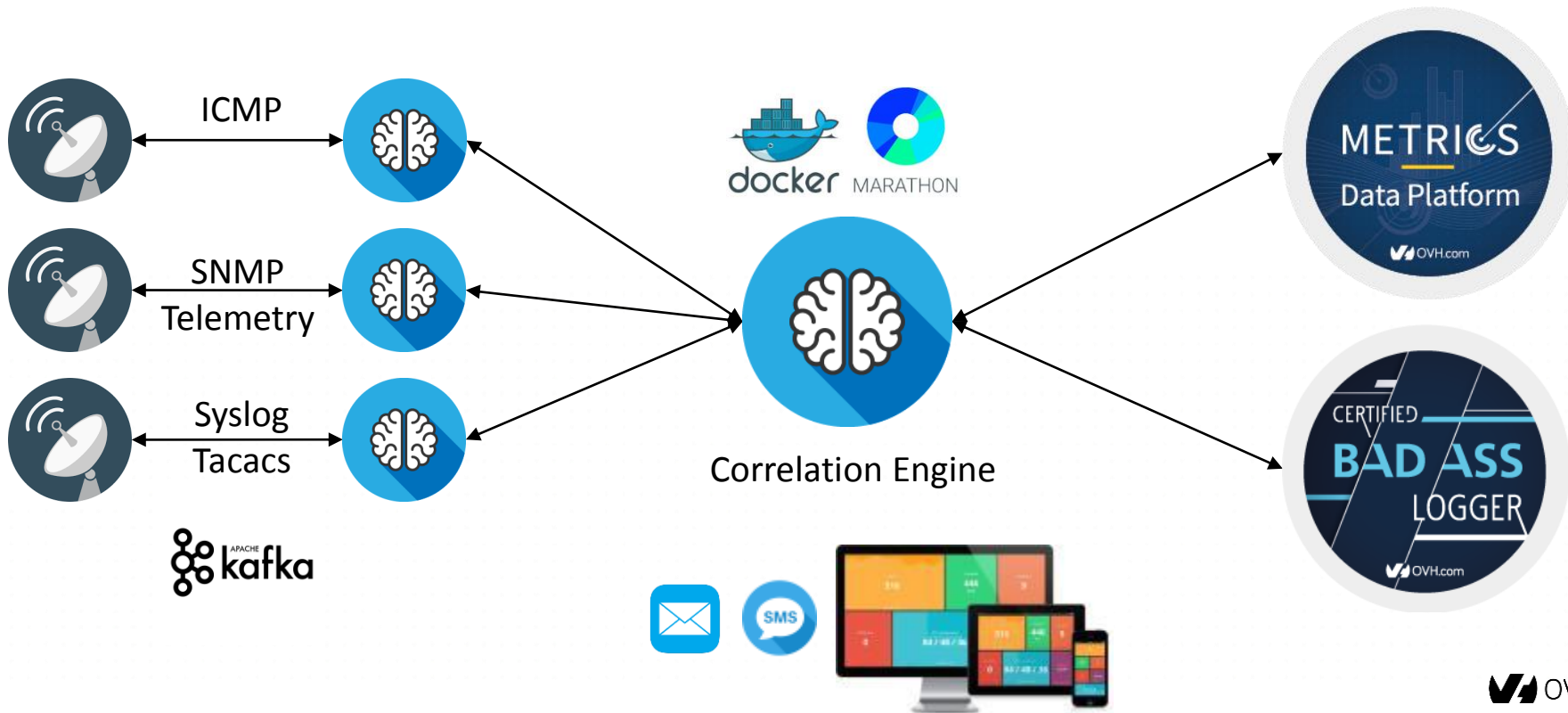
INFRASTRUCTURE IMPACT			
type	name	impacted ips	pattern
zone	Europe	41 / 185873 (0.022%)	
city	Roubaix	41 / 106236 (0.039%)	
datacenter	rbx3	41 / 41858 (0.098%)	
room	rbx3_45	41 / 14609 (0.281%)	
rack	45E01	41 / 77 (53.247%)	down

NETWORK IMPACT			
type	name	impacted ips	pattern
router	vss-10a/10b-6k	41 / 8324 (0.493%)	
vlan	681 vss-10a/10b-6k	41 / 171 (23.977%)	
switch	5.135.153.248	41 / 41 (100.000%)	breakdown

SERVER IMPACT			
type	name	impacted ips	pattern
routedTo	ns3297732.ip-5-135-153.eu	1 / 1 (100.000%)	breakdown
...			

NIC IMPACT			
type	name	impacted ips	pattern
nic	lf209586-ks	1 / 209 (0.478%)	
...			

Correlations





THANK YOU