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Using Zabbix to monitor our OpenNebula private cloud infrastructure

Zabbix Summit 2022

DEPARTEMENT
OMGEVING

Introduction: About Me

- ▶ Geert Willems
- ▶ Departement Omgeving/Environment (since 2015)
- ▶ Flemish Government
- ▶ Aims to create integrated environmental/planning policy
- ▶ Infra-Team – System Engineer

Introduction: IT

- ▶ 5 Dev teams (50+ Devs) / 1 Infra/middleware team (7 FTE)
- ▶ 3 Datacenters
- ▶ Java/Spring boot or Open Source (300+)
- ▶ HA-setup
- ▶ Postgres Db's (170+)
- ▶ 3 environments (dev/test/prod)
- ▶ Hosting for other entities/agencies
- ▶ 500+ deploys/week

➔ 2200+ Virtual Machines

Infrastructure – Datacenters

DC 1

DC 2

DC 3

Redundant 10 GB stretched L2 fiber network

 **Open
Nebula**
Frontend (HA)

ZABBIX
Server & Frontend

 **FOREMAN**
Bootstrap


Backup – tape robot

 **Open
Nebula**
Frontend (HA)


Backup DC 3 (Disk)

  **ceph**
Hosts + Storage

- Host-cluster for even nodes with own Ceph storage
- Host-cluster for odd nodes with own Ceph storage

 **Open
Nebula**
Frontend (HA)


Backup DC 2 (Disk)

  **ceph**
Hosts + Storage

- Host-cluster for even nodes
- Host-cluster for odd nodes
- Ceph-cluster for both host-clusters



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Infrastructure - Datacenters



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Infrastructure – Bare-metals

- ▶ **Config management -> Ansible**
- ▶ **Install Zabbix Agent2/sender**
- ▶ **Zabbix configuration**
 - Ansible host and/or group config
 - × network
 - × Group assignments (DC, OpenNebula , Ceph , ...)
 - × Templates to use (Linux, IPMI, SNMP, ...)
- ▶ **Zabbix version 6.0.x for Server and Agent2/sender**
 - both bare-metals and VM's
 - Upgrades are followed up and performed by our Zabbix specialist Patrik Uytterhoeven.

Infrastructure – OpenNebula Hosting

- ▶ **Deployment philosophy: Infrastructure as code**
 - ▶ **Eliminate manual intervention**
 - ▶ **Automate deployment of servers**
 - Less room for human error
 - Repeatability: Deploy = New VM
 - Migration of servers between DC's
 - ▶ **Self service for development teams**
- ➔ **Enter the OHO server templates**

Infrastructure – OpenNebula Hosting Server Template

- ▶ **YAML file in version control that describes:**
 - Virtual machine: network, disks, ram, cpu
 - External systems: dns, backup, monitoring, keycloak, ...
 - Software to install
- ▶ **Extensible for new components**
- ▶ **Used as input by our automation tool for VM deploys**
 - Ansible -> set Host in maintenance in Zabbix
 - Destroy VM in OpenNebula and config external systems
 - Redeploy VM and config external systems
 - Ansible -> Install Zabbix Agent2/sender on VM + config Zabbix server

Monitoring with Zabbix – OpenNebula environment

- ▶ **OpenNebula has own monitoring mechanism**
 - Executed at configured intervals for Hosts, VM's, ...
 - OpenNebula CLI commands get states and/or metrics
 - × Frontends (HA)
 - Availability and Federation Sync state
 - × Hosts
 - States
 - Allocated and used CPU/Mem
 - ...
 - × VM's
 - States
 - Allocated and used CPU/MEM
 - ...
 - × Datastores ...

Monitoring with Zabbix

Examples

```
[root@dc1-rk7-one-fel ~]# onezone show 0
```

```
ZONE 0 INFORMATION
```

```
ID          : 0
```

```
NAME        : OpenNebula
```

```
ZONE SERVERS
```

ID	NAME	ENDPOINT
0	dc1-rk7-one-fel.cumuli.be	http://WW.XX.YY.ZZ:2633/RPC2
1	dc3-f1-one-fel.cumuli.be	http://WW.XX.YY.ZZ:2633/RPC2
2	dc4-f1-one-fel.cumuli.be	http://WW.XX.YY.ZZ:2633/RPC2

```
HA & FEDERATION SYNC STATUS
```

ID	NAME	STATE	TERM	INDEX	COMMIT	VOTE	FED_INDEX
0	dc1-rk7-one-fel.cumuli.be	leader	753	334010206	334010206	0	-1
1	dc3-f1-one-fel.cumuli.be	follower	753	334010206	334010206	-1	-1
2	dc4-f1-one-fel.cumuli.be	follower	753	334010206	334010206	0	-1

Monitoring with Zabbix

```
[root@dc1-rk7-one-fe1 ~]# onehost list
```

ID	NAME	CLUSTER	TVM	ALLOCATED_CPU	ALLOCATED_MEM	STAT
42	dc4-f-cl2-hv6.cumuli.be	dc4-cl2	63	12900 / 24000 (53%)	194.5G / 755.1G	(2 on
41	dc4-f-cl2-hv5.cumuli.be	dc4-cl2	63	13100 / 24000 (54%)	205.5G / 755.1G	(2 on
40	dc4-f-cl2-hv4.cumuli.be	dc4-cl2	66	16200 / 24000 (67%)	305.9G / 755.1G	(4 on
39	dc4-f-cl2-hv3.cumuli.be	dc4-cl2	66	14700 / 24000 (61%)	199.1G / 755.1G	(2 on
38	dc4-f-cl2-hv2.cumuli.be	dc4-cl2	63	15000 / 24000 (62%)	237G / 755.1G	(31% on
37	dc4-f-cl2-hv1.cumuli.be	dc4-cl2	63	14600 / 24000 (60%)	209.4G / 755.1G	(2 on
36	dc4-a-cl1-hv6.cumuli.be	dc4-cl1	179	35900 / 51200 (70%)	575.7G / 755.4G	(7 on
35	dc4-a-cl1-hv5.cumuli.be	dc4-cl1	179	37700 / 51200 (73%)	660.7G / 755.4G	(8 on
34	dc4-a-cl1-hv4.cumuli.be	dc4-cl1	179	36800 / 51200 (71%)	653.7G / 755.4G	(8 on
33	dc4-a-cl1-hv2.cumuli.be	dc4-cl1	179	39000 / 51200 (76%)	739.1G / 755.4G	(9 on
32	dc4-a-cl1-hv3.cumuli.be	dc4-cl1	179	39100 / 51200 (76%)	666.9G / 755.4G	(8 on
31	dc4-a-cl1-hv1.cumuli.be	dc4-cl1	179	35900 / 51200 (70%)	570.9G / 755.4G	(7 on
30	dc4-a-cl1-db-on-1.cumuli.be	dc4-db-on-	9	900 / 33600 (2%)	13.5G / 503.5G	(2% on
29	dc4-a-cl1-db-oe-1.cumuli.be	dc4-db-oe-	7	800 / 33600 (2%)	16G / 503.5G	(3% on
11	dc3-g7-cl2-hv3.cumuli.be	dc3-cl2	46	12200 / 38400 (31%)	217.4G / 755.4G	(2 on
10	dc3-g7-cl2-hv2.cumuli.be	dc3-cl2	46	11500 / 38400 (29%)	324.5G / 755.4G	(4 on
9	dc3-g7-cl2-hv1.cumuli.be	dc3-cl2	45	10400 / 38400 (27%)	316G / 755.4G	(41% on
8	dc3-g5-cl2-hv2.cumuli.be	dc3-cl2	45	9100 / 38400 (23%)	184.9G / 755.4G	(2 on
7	dc3-g5-cl2-hv3.cumuli.be	dc3-cl2	45	8900 / 38400 (23%)	168.5G / 755.4G	(2 on
6	dc3-f7-cl1-hv3.cumuli.be	dc3-cl1	89	26600 / 38400 (69%)	646.6G / 755.4G	(8 on
5	dc3-g5-cl2-hv1.cumuli.be	dc3-cl2	45	8500 / 38400 (22%)	131.8G / 755.4G	(1 on
4	dc3-f7-cl1-hv2.cumuli.be	dc3-cl1	89	20900 / 38400 (54%)	373.5G / 755.4G	(4 on
3	dc3-f7-cl1-hv1.cumuli.be	dc3-cl1	88	18800 / 38400 (48%)	475.2G / 755.4G	(6 on
2	dc3-f1-cl1-hv3.cumuli.be	dc3-cl1	88	20000 / 38400 (52%)	462.4G / 755.4G	(6 on
1	dc3-f1-cl1-hv1.cumuli.be	dc3-cl1	88	19650 / 38400 (51%)	419.6G / 755.4G	(5 on
0	dc3-f1-cl1-hv2.cumuli.be	dc3-cl1	88	19600 / 38400 (51%)	402G / 755.4G	(53% on

Monitoring with Zabbix

```
[root@dc1-rk7-one-fe1 ~]# onehost show 0
HOST 0 INFORMATION
ID                : 0
NAME              : dc3-f1-cl1-hv2.cumuli.be
CLUSTER           : dc3-cl1
STATE             : MONITORED
IM_MAD            : kvm
VM_MAD            : kvm
LAST MONITORING TIME : 09/23 14:52:23
```

HOST SHARES

RUNNING VMS : 88

MEMORY

TOTAL : 755.4G

TOTAL +/- RESERVED : 755.4G

USED (REAL) : 391.8G

USED (ALLOCATED) : 402G

CPU

TOTAL : 6400

TOTAL +/- RESERVED : 38400

USED (REAL) : 832

USED (ALLOCATED) : 19600

. . .

ID	USER	GROUP	NAME	STAT	CPU	MEM	HOST	TIME
80144	oneadmin	oneadmin	idmprofiles-pr-1	runn	1	1024M	dc3-f1-cl1-hv2.cumuli.be	0d 06h27
80137	oneadmin	oneadmin	vragenlijst-jira-pr-1	runn	2	2G	dc3-f1-cl1-hv2.cumuli.be	0d 06h45
80135	oneadmin	oneadmin	voortoets-pr-1	runn	2	2G	dc3-f1-cl1-hv2.cumuli.be	0d 06h48
80134	oneadmin	oneadmin	vsm-pr-1	runn	2	3G	dc3-f1-cl1-hv2.cumuli.be	0d 06h50

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Monitoring with Zabbix

```
[root@dc1-rk7-one-fe1 ~]# onevm show 80144
VIRTUAL MACHINE 80144 INFORMATION
ID                : 80144
NAME              : idmprofiles-pr-1
USER              : oneadmin
GROUP             : oneadmin
STATE             : ACTIVE
LCM_STATE         : RUNNING
LOCK              : None
RESCHED          : No
HOST              : dc3-f1-cl1-hv2.cumuli.be
CLUSTER ID       : 100
CLUSTER          : dc3-cl1
START TIME       : 09/23 08:38:14
END TIME         : -
DEPLOY ID        : one-80144
```

```
VIRTUAL MACHINE MONITORING
CPU                : 1.0
MEMORY            : 1.3G
NETTX             : 8.9M
NETRX             : 425.3M
DISKRDBYTES       : 1291087844
DISKRDIOPS        : 31023
DISKWRBYTES       : 2977212416
DISKWRIOPS        : 30527
ID                : 80144
TIMESTAMP         : 1663938191
```

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Monitoring with Zabbix

```
[root@dcl-rk7-one-fe1 ~]# onedatastore list
```

ID	USER	GROUP	NAME	SIZE	AVA	CLUSTERS	IMAGES	TYPE	DS	TM	STAT
111	oneadmin	oneadmin	ceph-image-dc4-cl1-hdd	380.7T	65%	102,103,	926	img	ceph	ceph	on
110	oneadmin	oneadmin	ceph-system-dc4-cl1	380.7T	65%	102,103,	0	sys	-	ceph	on
105	oneadmin	oneadmin	ceph-image-dc3-cl2-hdd	313.6T	79%	101,105	189	img	ceph	ceph	on
104	oneadmin	oneadmin	ceph-image-dc3-cl1-hdd	307.5T	76%	100,104	393	img	ceph	ceph	on
103	oneadmin	oneadmin	system-ssh	-	-	104,105,	0	sys	-	ssh	on
101	oneadmin	oneadmin	ceph-system-dc3-cl2	313.6T	79%	101,105	0	sys	-	ceph	on
100	oneadmin	oneadmin	ceph-system-dc3-cl1	307.5T	76%	100,104	0	sys	-	ceph	on
2	oneadmin	oneadmin	files	4.8G	43%	0	3003	fil	fs	ssh	on

Monitoring with Zabbix – OpenNebula environment

- ▶ **Using OpenNebula's monitoring states/values**
 - Used template/script found from Zabbix-community
 - Problems we had
 - × Does not cover all the states/metrics
Contained only those needed by the developer of the script
 - Probably not useful for everyone
 - × Upgrade to new versions of OpenNebula
 - Some output from CLI changed
 - Modifications in script
 - items collected via external user parameters of the agent.
 - Link: <https://github.com/OpenNebula/addon-zabbix/>

Monitoring with Zabbix – OpenNebula environment

► Additional monitoring

→ Frontend Federation Sync State

× New script

→ Collect necessary values from CLI-command

HA & FEDERATION SYNC STATUS							
ID	NAME	STATE	TERM	INDEX	COMMIT	VOTE	FED_INDEX
0	dc1-rk7-one-fe1.cumuli.be	leader	753	334005341	334005341	0	-1
1	dc3-f1-one-fe1.cumuli.be	follower	753	334005341	334005341	-1	-1
2	dc4-f1-one-fe1.cumuli.be	follower	753	334005341	334005341	0	-1

→ Validate these values -> difference -> alert

Name ▲	Triggers	Key	Interval	History	Trends	Type	Status	Tags
Template AGENT OpenNebula: HA Cluster Status	Triggers 1	system.run[sudo /var/lib/one/scripts/Check_HA_Status.sh]	15m	90d	365d	Zabbix agent	Enabled	Application: Cluster St...

Severity	Name	Expression	Status
High	Template AGENT OpenNebula: (HOST.HOST) is out of sync	Problem: <code>last(/nebula.cumuli.be/system.run[sudo /var/lib/one/scripts/Check_HA_Status.sh])=1</code> Recovery: <code>last(/nebula.cumuli.be/system.run[sudo /var/lib/one/scripts/Check_HA_Status.sh])=0</code>	Enabled

Item collected via external user parameter of the agent

Monitoring with Zabbix – OpenNebula environment

► Additional monitoring (cont.)

→ SSL-certificate OpenNebula Frontends

× Using Agent2 template for monitoring SSL-certs with macros

Macro	Value	Description
{CERT.EXPIRY.WARN}	30	Number of days until the certificate expires.
{CERT.WEBSITE.HOSTNAME}	<Put DNS name>	The website DNS name for the connection.
{CERT.WEBSITE.IP}	value	The website IP address for the connection.
{CERT.WEBSITE.PORT}	443	The TLS/SSL port number of the website.

Host	IPMi	Tags	Macros	Inventory	Encryption	Value mapping
Host macros Inherited and host macros						
Macro		Value	Description			
{CERT.WEBSITE.HOSTNAME}		https://nebula.cumuli.be	The website DNS name for the connection.	Remove		
{CERT.WEBSITE.IP}			The website IP address for the connection.	Remove		
{SDOMAIN}		nebula.cumuli.be	description	Remove		

	Name ▲	Triggers	Key	Interval	History	Trends	Type	Status	Tags
	Website AGENT certificate by Zabbix agent 2: Cert: Exp: Expires on	Triggers 1	cert.not_after		7d	365d	Dependent item	Enabled	component: cert
	Website AGENT certificate by Zabbix agent 2: Cert: Exp: Fingerprint	Triggers 1	cert.sha1_fingerprint		7d		Dependent item	Enabled	component: cert
	Website AGENT certificate by Zabbix agent 2: Cert: Exp: Issuer		cert.issuer		7d		Dependent item	Enabled	component: cert
	Website AGENT certificate by Zabbix agent 2: Cert: Exp: Last validation status		cert.message		7d		Dependent item	Enabled	component: cert
	Website AGENT certificate by Zabbix agent 2: Cert: Exp: Public key algorithm		cert.public_key_algorithm		7d		Dependent item	Enabled	component: cert
	Website AGENT certificate by Zabbix agent 2: Cert: Exp: Serial number		cert.serial_number		7d		Dependent item	Enabled	component: cert
	Website AGENT certificate by Zabbix agent 2: Cert: Exp: Signature algorithm		cert.signature_algorithm		7d		Dependent item	Enabled	component: cert
	Website AGENT certificate by Zabbix agent 2: Cert: Exp: Subject		cert.subject		7d		Dependent item	Enabled	component: cert
	Website AGENT certificate by Zabbix agent 2: Cert: Exp: Subject alternative name		cert.alternative_names		7d		Dependent item	Enabled	component: cert
	Website AGENT certificate by Zabbix agent 2: Cert: Exp: Validation result	Triggers 1	cert.validation		7d		Dependent item	Enabled	component: cert

× Triggers

Severity	Name	Operational data	Expression	Status	Tags
Information	Cert: Fingerprint has changed (new version: {ITEM.VALUE})		last(/Website AGENT certificate by Zabbix agent 2/cert.sha1_fingerprint) <> last(/Website AGENT certificate by Zabbix agent 2/cert.sha1_fingerprint.#2)	Enabled	scope: notice
Warning	Cert: SSL certificate expires soon (less than {CERT.EXPIRY.WARN} days) Depends on: Website AGENT certificate by Zabbix agent 2: Cert: SSL certificate is invalid		(last(/Website AGENT certificate by Zabbix agent 2/cert.not_after) - now()) / 86400 < {CERT.EXPIRY.WARN}	Enabled	scope: notice
High	Cert: SSL certificate is invalid		find(/Website AGENT certificate by Zabbix agent 2/cert.validation,"like","invalid")=1	Enabled	scope: security

Displaying 3 of 3 found

Monitoring with Zabbix – OpenNebula environment

► Additional monitoring (cont.)

→ Check for zombie VM's

- × Situations where redeploy VM

- Active VM not removed from the hypervisor

- New VM ends

- In failed state

- With double IP

→ Script created

- × To check all hypervisors for active zombies

- × If found, an alert is sent to zabbix using the Zabbix-sender

- × Script executed daily by cron

- × Can be executed manually when needed

☐	Host	Name [▲]	Last check	Last value	Change	Tags
☐	nebula.cumuli.be	Cert: Expires on [?]	3h 2m 36s	2023-07-16 01:59:59		component: cert
☐	nebula.cumuli.be	Cert: Fingerprint [?]	3h 2m 36s	a0baf211843d601d5af1c5...		component: cert
☐	nebula.cumuli.be	Cert: Get [?]				component: raw
☐	nebula.cumuli.be	Cert: Issuer [?]	3h 2m 36s	CN=Sectigo RSA Domain ...		component: cert
☐	nebula.cumuli.be	Cert: Last validation status [?]	3h 2m 36s	certificate verified successf...		component: cert
☐	nebula.cumuli.be	Cert: Public key algorithm [?]	3h 2m 36s	RSA		component: cert
☐	nebula.cumuli.be	Cert: Serial number [?]	3h 2m 36s	8c094b6273a1622de3003...		component: cert
☐	nebula.cumuli.be	Cert: Signature algorithm [?]	3h 2m 36s	SHA256-RSA		component: cert
☐	nebula.cumuli.be	Cert: Subject [?]	3h 2m 36s	CN=nebula.cumuli.be		component: cert
☐	nebula.cumuli.be	Cert: Subject alternative name [?]	3h 2m 36s	["nebula.cumuli.be","www....		component: cert
☐	nebula.cumuli.be	Cert: Validation result [?]	3h 2m 36s	valid		component: cert
☐	nebula.cumuli.be	Cert: Valid from [?]	3h 2m 36s	2022-07-15 02:00:00		component: cert
☐	nebula.cumuli.be	Cert: Version [?]	3h 2m 36s	3		component: cert
☐	nebula.cumuli.be	HA Cluster Status	3m 29s	Ok (0)		Application: Cluster ...
☐	nebula.cumuli.be	OpenNebula: Collect Datastores	42m 56s	0		Application: OpenNe...
☐	nebula.cumuli.be	OpenNebula: Collect Hosts	37m 55s	0		Application: OpenNe...
☐	nebula.cumuli.be	OpenNebula: Collect VMs	42m 52s	0		Application: OpenNe...
☐	nebula.cumuli.be	OpenNebula: Collect VNets	37m 53s	0		Application: OpenNe...
☐	nebula.cumuli.be	OpenNebula: Datastore Free Space	12m 52s	1.42 PB	+2.09 GB	Application: OpenNe...
☐	nebula.cumuli.be	OpenNebula: Datastore Free Space %	12m 51s	73 %		Application: OpenNe...
☐	nebula.cumuli.be	OpenNebula: Datastores	12m 49s	8		Application: OpenNe...
☐	nebula.cumuli.be	OpenNebula: Datastore Total Space	12m 48s	1.96 PB	+3.38 GB	Application: OpenNe...
☐	nebula.cumuli.be	OpenNebula: Datastore Used Space	12m 47s	546.76 TB	+1.3 GB	Application: OpenNe...
☐	nebula.cumuli.be	OpenNebula: Datastore Used Space %	12m 50s	27 %		Application: OpenNe...
☐	nebula.cumuli.be	OpenNebula: Groups	12m 45s	2		Application: OpenNe...
☐	nebula.cumuli.be	OpenNebula: Hosts	57m 37s	26		Application: OpenNe...



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Monitoring with Zabbix – the deployed VM's

► Monitoring deployed VM's

→ Zabbix config in the server-template

- × proxy to use (application <> database)
- × templates
- × Group assignments
- × macros (text, vault, secrets)

Examples:

```
monitoringTemplates:
- Template AGENT OS Linux
- Template HTTP Actuator
- Template AGENT JMX Java
activeZabbixAgentServers:
- WW.XX.YY.ZZ
zabbixAgentProxy: zabbixproxy-pr-2
zabbixAgentServers:
- WW.XX.YY.ZZ
zabbixGroups:
- productie
- Team_services
- Team_Omv
zabbixMacros:
- macroKey: UNIT.NAME.MATCHES
  macroValue: 'omv-services.service'
- macroKey: HEALTH.URL
  macroValue: 'omv-services/admin/health'
```

```
monitoringTemplates:
- Template AGENT OS Linux
- Template AGENT ElasticSearch
activeZabbixAgentServers:
- WW.XX.YY.ZZ
zabbixAgentProxy: zabbixproxy-pr-2
zabbixAgentServers:
- WW.XX.YY.ZZ
zabbixGroups:
- productie
- Team_Infra
- Elasticsearch
- Team_Rockstars
zabbixMacros:
- macroKey: UNIT.NAME.MATCHES
  macroValue: '(elasticsearch.service|kibana.service)'
- macroKey: VFS.FS.PUSED.MAX.WARN:/var/lib/elasticsearch
  macroValue: '90'
- macroKey: VFS.FS.PUSED.MAX.CRIT:/var/lib/elasticsearch
  macroValue: '95'
- macroKey: VFS.FS.PUSED.MAX.WARN:/
  macroValue: '83'
- macroKey: VFS.FS.PUSED.MAX.CRIT:/
  macroValue: '85'
```

Dashboard – latest data - INFRA-team

Problems

Time	Info	Host	Problem • Severity	Operational data	Duration	Ack	Actions	Tags
12:58:13		glik-pr-1.vm.cumuli.be	High memory utilization (>90% for 5m)	95.3452 %	36m 45s	No	4	cla: os com: memory ...
12:00								
11:59:37		nifi-oe-3.vm.cumuli.be	cn_bulletin.failure.158b4bb4-04a9-3706-a402-abcac85f77cd is bigger then > 0	1	1h 35m 21s	No	5	app: cn_bulletin.failure cla: software ...
11:00								
03:40:07		nifi-oe-1.vm.cumuli.be	cn_bulletin.failure.158b4bb4-04a9-3706-a402-abcac85f77cd is bigger then > 0	1	9h 54m 52s	No	5	app: cn_bulletin.failure cla: software ...
03:37:59		rocketchat-pr-1.vm.cumuli.be	High swap space usage (less than 20% free)	Free: 38.8193 %, total: 1 GB	9h 57m	No	9	cla: os com: memory ...
03:00								

Status

Parameter	Value	Details
Zabbix server is running	Yes	dc1-zabbix1.cumuli.be:10051
Number of hosts (enabled/disabled)	2355	2344 / 11
Number of templates	79	
Number of items (enabled/disabled/not supported)	436768	430269 / 6387 / 112
Number of triggers (enabled/disabled [problem/ok])	106457	100034 / 6423 [53 / 99971]
Number of users (online)	88	5
Required server performance, new values per second	1778.36	
Database history tables upgraded	No	
High availability cluster	Disabled	

System Status

Host group	Disaster	High	Average	Warning	Information
Backup			1 of 1		
Barsmetal		0 of 3	9 of 9		
oefen		2 of 2	2 of 2	7 of 7	
ontwikkel		6 of 8	2 of 2	10 of 10	0 of 1
PostgreSQL		0 of 4		1 of 1	2 of 2
productie		4 of 8	2 of 3	4 of 4	
Team_infra		0 of 7	11 of 12	3 of 3	0 of 1

Status Zabbix Proxies



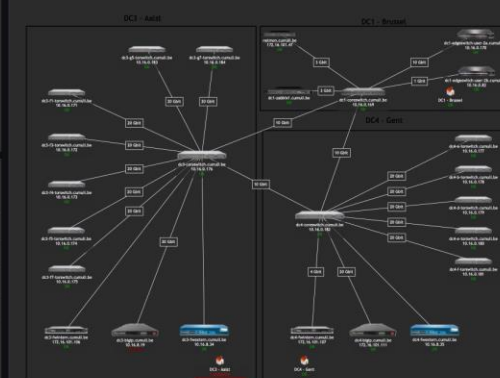
Web monitoring

Host group	Ok	Failed	Unknown
Webservices	41		

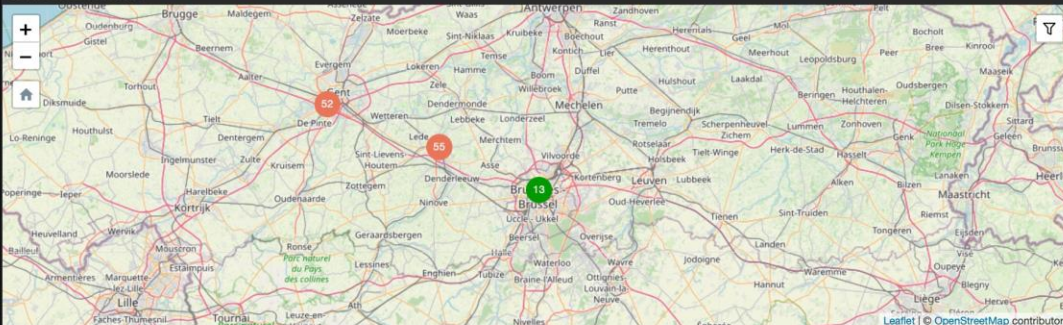
Host availability

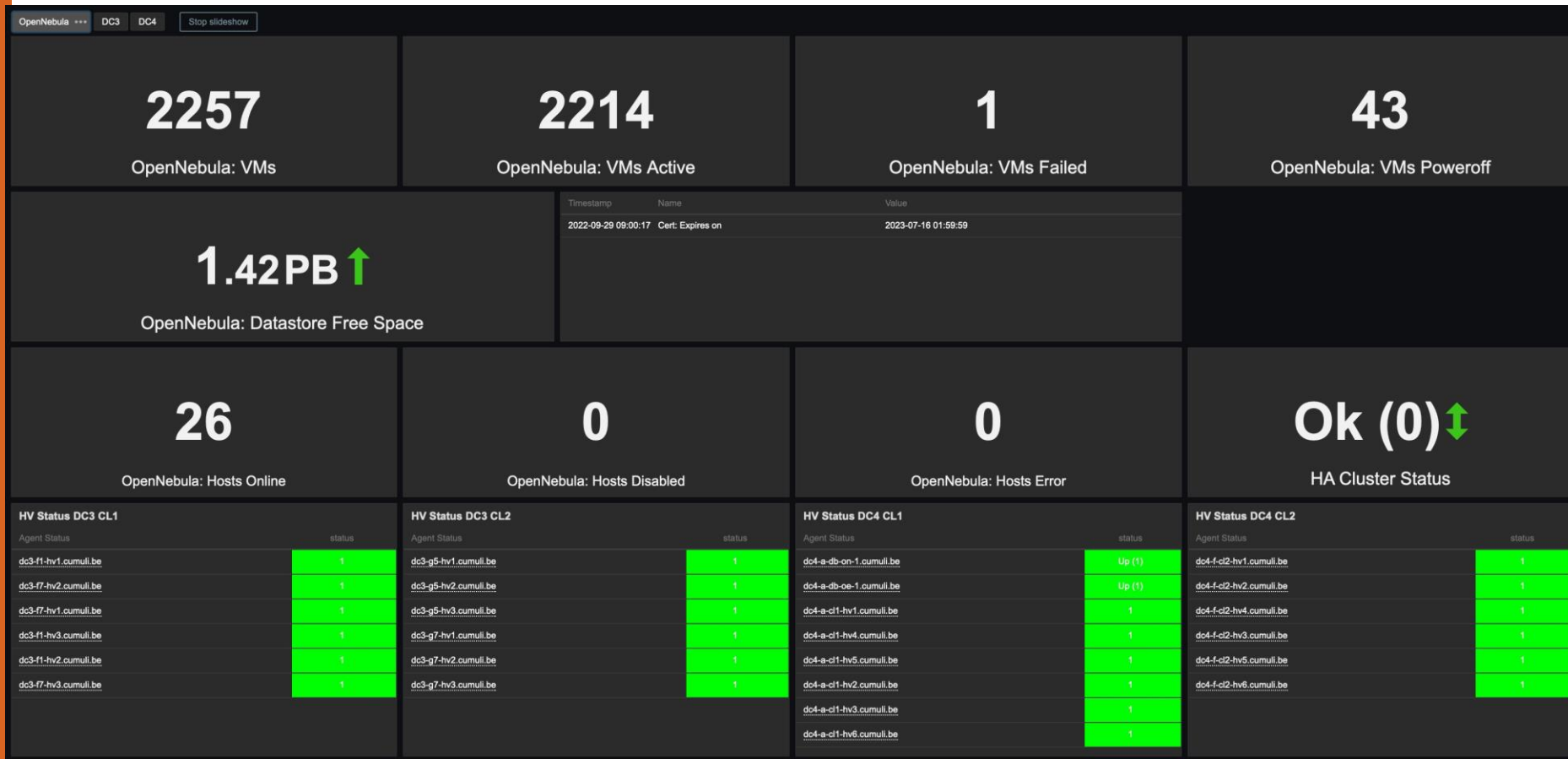
	Available	Not available	Unknown	Total
Zabbix agent	2127	5	26	2158
SNMP	26	0	10	36
JMX	1021	22	4	1047
IPMI	7	0	0	7

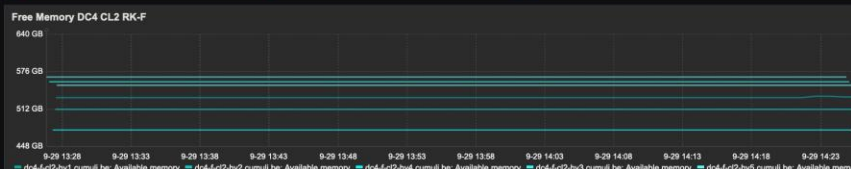
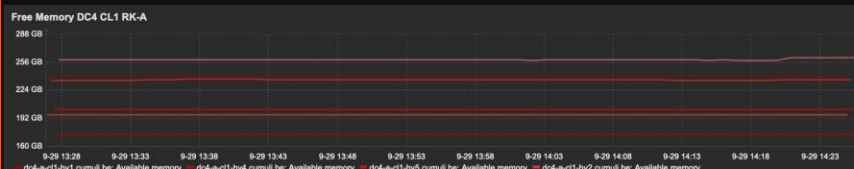
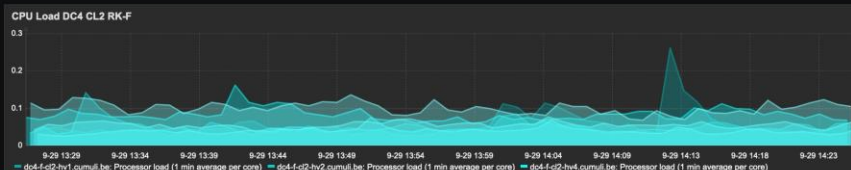
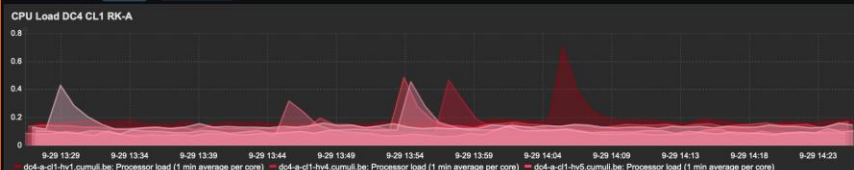
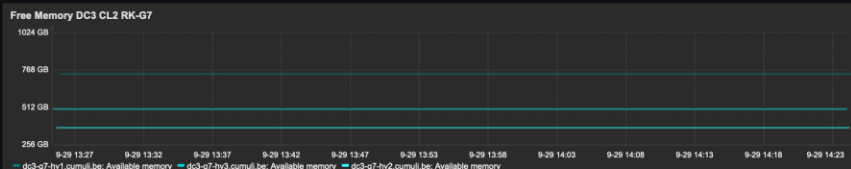
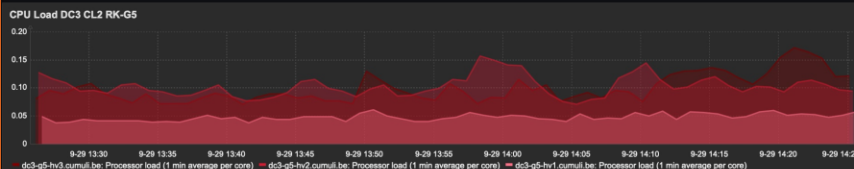
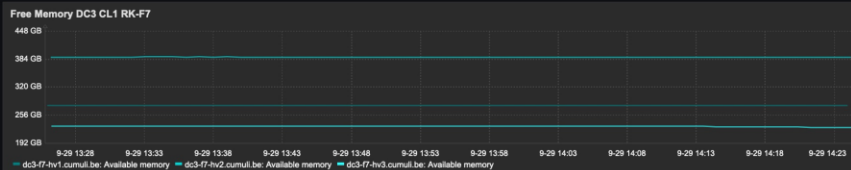
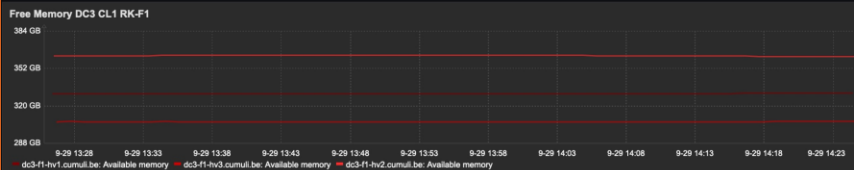
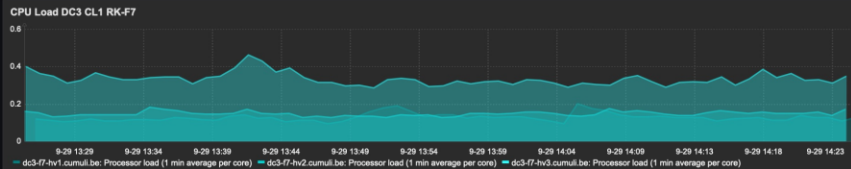
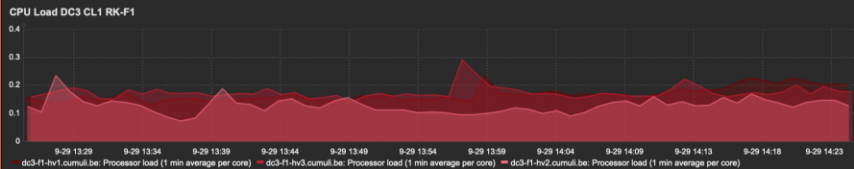
Network



Datacenter Locations







Host	Name [▲]	Last check	Last value	Change	Tags
dc3-f1-hv1.cumuli.be	Available memory [?]	2s	322.43 GB	+3.01 MB	Application: Memory
dc3-f1-hv1.cumuli.be	Context switches per second	2m 21s	72.73 Kcps	-1.71 Kcps	Application: CPU Application: Perform...
dc3-f1-hv1.cumuli.be	CPU \$2 time [?]	13s	1.0819 %	+0.1003 %	Application: CPU Application: Perform...
dc3-f1-hv1.cumuli.be	CPU \$2 time [?]	14s	5.5049 %	+0.613 %	Application: CPU Application: Perform...
dc3-f1-hv1.cumuli.be	CPU \$2 time [?]	15s	0 %		Application: CPU Application: Perform...
dc3-f1-hv1.cumuli.be	CPU \$2 time [?]	17s	0 %		Application: CPU Application: Perform...
dc3-f1-hv1.cumuli.be	CPU \$2 time [?]	18s	0 %		Application: CPU Application: Perform...
dc3-f1-hv1.cumuli.be	CPU \$2 time [?]	19s	79.9013 %	-1.0948 %	Application: CPU Application: Perform...
dc3-f1-hv1.cumuli.be	CPU \$2 time [?]	20s	0.0034 %	+0.0005 %	Application: CPU Application: Perform...
dc3-f1-hv1.cumuli.be	CPU \$2 time [?]	16s	0.2604 %	+0.0218 %	Application: CPU Application: Perform...
dc3-f1-hv1.cumuli.be	CPU number of CPU's	2h 12m 22s	64		Application: CPU
dc3-f1-hv1.cumuli.be	Free swap space	2m 8s	32 GB		Application: Memory
dc3-f1-hv1.cumuli.be	Free swap space in %	2m 7s	100 %		Application: Memory
dc3-f1-hv1.cumuli.be	Host boot time	2m 27s	2019-06-14 09:50:14		Application: General Application: OS
dc3-f1-hv1.cumuli.be	Host local time	2m 11s	2022-10-05 12:06:13	+00:04:59	Application: General Application: OS
dc3-f1-hv1.cumuli.be	Host name [?]	2h 12m 12s	dc3-f1-hv1		Application: General Application: OS
dc3-f1-hv1.cumuli.be	Interrupts per second	26s	65.75 Kips	+3.3 Kips	Application: CPU Application: Perform...
dc3-f1-hv1.cumuli.be	Maximum number of opened files [?]	2m 31s	78486887		Application: OS
dc3-f1-hv1.cumuli.be	Maximum number of processes [?]	2m 30s	4194304		Application: OS
dc3-f1-hv1.cumuli.be	Number of Pages Swaped In	10s	0		Application: Memory
dc3-f1-hv1.cumuli.be	Number of Pages Swaped Out	9s	0		Application: Memory
dc3-f1-hv1.cumuli.be	Processor load (1 min average per core) [?]	25s	0.1875	-0.0022	Application: CPU Application: Perform...
dc3-f1-hv1.cumuli.be	Processor load (5 min average per core) [?]	23s	0.1847	+0.0036	Application: CPU Application: Perform...
dc3-f1-hv1.cumuli.be	Processor load (15 min average per core) [?]	2m 24s	0.1752	+0.0021	Application: CPU Application: Perform...
dc3-f1-hv1.cumuli.be	System information [?]	2h 12m 5s	Linux dc3-f1-hv1 3.10.0-95...		Application: General Application: OS
dc3-f1-hv1.cumuli.be	System uptime	2m 4s	1209 days, 02:16:07	+00:05:00	Application: General Application: OS
dc3-f1-hv1.cumuli.be	Total memory	2m 1s	755.39 GB		Application: Memory
dc3-f1-hv1.cumuli.be	Total swap space	2h 12m 6s	32 GB		Application: Memory
dc3-f1-hv1.cumuli.be	Zabbix agent availability [?]	1m	1		Application: Status



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Dashboard – latest data - DEV-team



Host	Name 	Last check	Last value	Change	Tags
vergunningenregister-pr-1.vm.cu...	Available memory 	1m 18s	419.5 MB	+524 KB	component: memory
vergunningenregister-pr-1.vm.cu...	Available memory in % 	1m 17s	14.0193 %	+0.0171 %	component: memory
vergunningenregister-pr-1.vm.cu...	Context switches per second	4m 25s	339.7148	-2.6704	component: cpu
vergunningenregister-pr-1.vm.cu...	CPU guest nice time 	4m 24s	0 %		component: cpu
vergunningenregister-pr-1.vm.cu...	CPU guest time 	4m 26s	0 %		component: cpu
vergunningenregister-pr-1.vm.cu...	CPU idle time 	4m 23s	99.289 %	+0.1671 %	component: cpu
vergunningenregister-pr-1.vm.cu...	CPU interrupt time 	4m 20s	0 %		component: cpu
vergunningenregister-pr-1.vm.cu...	CPU iowait time 	4m 21s	0.092 %	-0.0585 %	component: cpu
vergunningenregister-pr-1.vm.cu...	CPU nice time 	4m 19s	0 %		component: cpu
vergunningenregister-pr-1.vm.cu...	CPU softirq time 	4m 22s	0.0084 %	-0.0251 %	component: cpu
vergunningenregister-pr-1.vm.cu...	CPU steal time 	4m 51s	0.0502 %	+0.0084 %	component: cpu
vergunningenregister-pr-1.vm.cu...	CPU system time 	4m 53s	0.1672 %	+0.025 %	component: cpu
vergunningenregister-pr-1.vm.cu...	CPU user time 	4m 52s	0.5184 %	+0.0166 %	component: cpu
vergunningenregister-pr-1.vm.cu...	CPU utilization 	4m 23s	0.711 %	-0.1671 %	component: cpu
vergunningenregister-pr-1.vm.cu...	Free swap space 	1m 21s	913.25 MB		component: memory component: storage
vergunningenregister-pr-1.vm.cu...	Free swap space in % 	1m 20s	89.1845 %		component: memory component: storage
vergunningenregister-pr-1.vm.cu...	Interrupts per second	4m 54s	218.4694	-5.6806	component: cpu
vergunningenregister-pr-1.vm.cu...	java.memory. HeapMemoryUsage.committed	3m 51s	2 GB		Application: JMX Hea...
vergunningenregister-pr-1.vm.cu...	java.memory. HeapMemoryUsage.max	3m 51s	2 GB		Application: JMX Hea...
vergunningenregister-pr-1.vm.cu...	java.memory. HeapMemoryUsage.used	3m 51s	898.9 MB	+166 MB	Application: JMX Hea...
vergunningenregister-pr-1.vm.cu...	Load average (1m avg)	3m 4s	0	-0.06	component: cpu
vergunningenregister-pr-1.vm.cu...	Load average (5m avg)	3m 2s	0	-0.01	component: cpu
vergunningenregister-pr-1.vm.cu...	Load average (15m avg)	3m 3s	0		component: cpu
vergunningenregister-pr-1.vm.cu...	Memory Usage Java Process	49s	1.85 GB		component: memory
vergunningenregister-pr-1.vm.cu...	Number of CPUs	20h 13m 5s	2		component: cpu
vergunningenregister-pr-1.vm.cu...	Service: [python-beaver.service] is enabled :	52s	enabled		component: python-b... component: systemd.s...
vergunningenregister-pr-1.vm.cu...	Total memory 	20h 11m 16s	2.92 GB		component: memory
vergunningenregister-pr-1.vm.cu...	Total swap space 	1m 19s	1 GB		component: memory component: storage



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*Looking forward to testing a future official Zabbix template for
OpenNebula!*

Feature request <https://support.zabbix.com/browse/ZBXNEXT-8016>



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Thank You

DEPARTEMENT
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