

# Monitoring an Openstack cluster with icinga/nagios

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## **Cirrax GmbH since 2011**

- ▶ based in Bern (Switzerland)
- ▶ Linux and network consulting and engineering
- ▶ Project Management
- ▶ Private and Public OpenStack Cloud
- ▶ Active contributors to OpenStack and other OpenSource projects

# Our objectives

- ▶ one tool for system status: icinga/nagios
- ▶ monitor generic resources like memory, disk, CPU etc.
- ▶ monitor external availability of services like https, ping etc.
- ▶ openstack-nagios-plugins to monitor openstack health
  - ▶ similar to OpenStack client tools
  - ▶ written in python
  - ▶ use OpenStack libraries
  - ▶ use nagiosplugin library
  - ▶ hosted on github
  - ▶ contributions welcome!

# Check services

```
./check_nova-services
```

```
$ nova hypervisor-stats
```

```
+-----+-----+
| Property          | Value |
+-----+-----+
| count             | 2     | # 2 compute nodes
| current_workload  | 0     |
| disk_available_least | 98    |
| free_disk_gb      | 97    |
| free_ram_mb       | 6394  |
| local_gb          | 98    |
| local_gb_used     | 1     |
| memory_mb         | 7930  | # total memory
| memory_mb_used    | 1536  | # memory uses by vm's
| running_vms       | 1     |
| vcpus             | 4     | # total vcpus
| vcpus_used        | 1     | # vcpus used by vm's
+-----+-----+
```

```
$ ./check_nova-hypervisors
```

```
NOVAHYPERVISORS OK - [memory_used:1536 memory_percent:19 vcpus_used:1 vcpus_percent:25  
running_vms:1] |
```

```
memory_percent=19;90;95;0;100  
memory_used=1536;;;0;7930  
running_vms=1;;;0  
vcpus_percent=25;90;95;0;100  
vcpus_used=1;;;0;4
```

# Check services

./check\_nova-services

```
$ nova service-list
```

Id	Binary	Host	Zone	Status	State	Updated at	Disabled R.
1	nova-conductor	0.t.ch	nova	enabled	up	...T14:09:02	-
2	nova-consoleauth	0.t.ch	nova	enabled	up	...T14:09:05	-
3	nova-scheduler	0.t.ch	nova	enabled	up	...T14:09:04	-
4	nova-cert	0.t.ch	nova	enabled	up	...T14:09:04	-
5	nova-compute	1.t.ch	nova	enabled	up	...T14:09:03	-
6	nova-compute	2.t.ch	nova	enabled	down	...T14:09:01	-
7	nova-compute	3.t.ch	nova	disabled	down	...T14:09:09	Maintenance

```
$ ./check_nova-services
```

```
NOVASERVICES CRITICAL - [up:5 disabled:1 down:2 total:7] | disabled=1;@1;;0 down=.....
```

```
$ ./check_nova-services --host 1.t.ch
```

```
NOVASERVICES OK - [up:1 disabled:0 down:0 total:1] | disabled=0;@1;;0 down=.....
```

```
$ ./check_nova-services --binary nova-compute
```

```
NOVASERVICES CRITICAL - [up:1 disabled:1 down:2 total:3] | disabled=1;@1;;0 down=.....
```

# Check services/agents

cinder and neutron

```
$ cinder service-list
```

Binary	Host	Zone	Status	State	Updated_at
cinder-scheduler	0.t.ch	nova	enabled	up	...T09:26:42
cinder-volume	0.t.ch	nova	enabled	up	...T09:26:46

```
$ ./check_cinder-services
```

```
CINDERSERVICES OK - [up:2 disabled:0 down:0 total:2] | disabled=0;@1:;;0 down=...
```

```
$ neutron agent-list
```

id	agent_type	host	alive	admin_state_up	binary
6...	Loadbalancer agent	0.t.ch	:-]	True	neutron-lbaas-agent
e...	L3 agent	0.t.ch	:-]	True	neutron-l3-agent
b...	Open vSwitch agent	2.t.ch	:-]	True	neutron-openvswitch-agent
b...	Open vSwitch agent	1.t.ch	:-]	True	neutron-openvswitch-agent
7...	Open vSwitch agent	0.t.ch	:-]	True	neutron-openvswitch-agent
e...	Metadata agent	0.t.ch	:-]	True	neutron-metadata-agent
1...	Metering agent	0.t.ch	:-]	True	neutron-metering-agent
7...	DHCP agent	0.t.ch	:-]	True	neutron-dhcp-agent

```
$ ./check_neutron-agents
```

```
NEUTRONAGENTS OK - [up:8 disabled:0 down:0] | disabled=0;@1:;;0 down=...
```

# Floating IP's

```
$ neutron floatingip-list
```

```
+-----+-----+-----+-----+
| id    | fixed_ip_address | floating_ip_address | port_id |
+-----+-----+-----+-----+
| f...  |                  | xxx.xxx.xxx.9       |         |
| 5...  | 192.168.0.13     | xxx.xxx.xxx.20     | 4...   |
| 2...  | 192.168.0.12     | xxx.xxx.xxx.3       | 2...   |
+-----+-----+-----+-----+
```

```
$ ./check_neutron-floatingips -c 0:230 -w 0:200
```

```
NEUTRONFLOATINGIPS OK - [assigned:3 used:2] | assigned=3;200;230;0 used=2;;;0
```

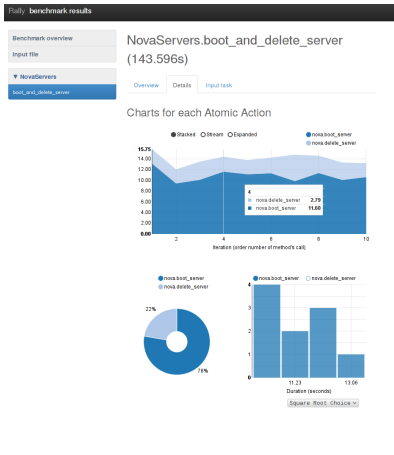
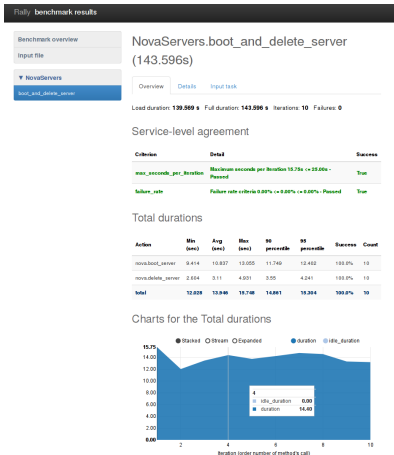
- ▶ ceilometer stores samples for events in the cloud
- ▶ regularly triggered audit events for usage
- ▶ data is used to measure past usage of OpenStack (eg for billing)

```
$ ./check_ceilometer-statistics -m volume  
CEILOMETERSTATISTICS OK - [age:26.21m count:88samples value:1volume] | age=...
```

- ▶ we use this test to verify freshness of meters.



- ▶ Rally is a benchmarking tool
- ▶ run automated scenarios on a deployed cloud
- ▶ example scenario: boot and delete server
- ▶ one rally run: several iterations of different scenarios
- ▶ possibility to specify SLA



- ▶ Rally stores all result in database
- ▶ Output as HTML or json
- ▶ summarize json result for nagios/icinga

```
$ rally task results | ./check_rally-results
```

```
RALLYRESULTS OK - [errors:0 slafail:0] |  
errors=0;0;0 fulldur=542.087836981s loaddur=222.671538115s slafail=0;0;0 total=46
```

- ▶ this presentation:  
[https://cirrax.com/downloads/2015\\_OpenstackMonitoring.pdf](https://cirrax.com/downloads/2015_OpenstackMonitoring.pdf)
- ▶ openstack-nagios-plugins:  
<https://github.com/cirrax/openstack-nagios-plugins>
- ▶ Rally:  
<https://wiki.openstack.org/wiki/Rally>
- ▶ nagiosplugin library:  
<https://pypi.python.org/pypi/nagiosplugin/>
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