Service Level Agreements

03.05.2018, Mathias Kettner

Check_MK Conference #4

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MUNICH 2018/5/2-4
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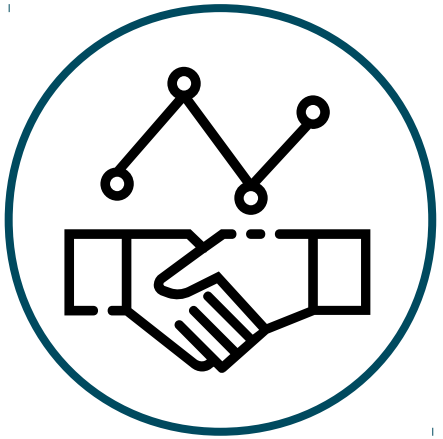
Availability

SLA

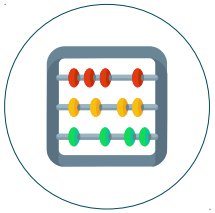


SLA Monitoring

Types of requirements

Percentage:

- Minimum percentage of State OK
- Maximum percentage of State Crit

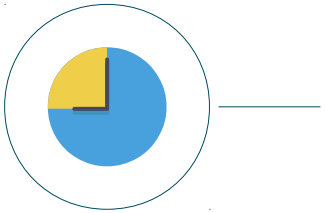


Outage Count:

- Number of occurances of state CRIT with given duration

Extensible through plugins

Timeperiods



Requirements can be connected to timeperiods

SLA Definition Example

SLA Period : Monthly

Requirement 1 : Service uptime at least 99.5%

Requirement 2 : Maximum of 3 one hour outages during weekdays

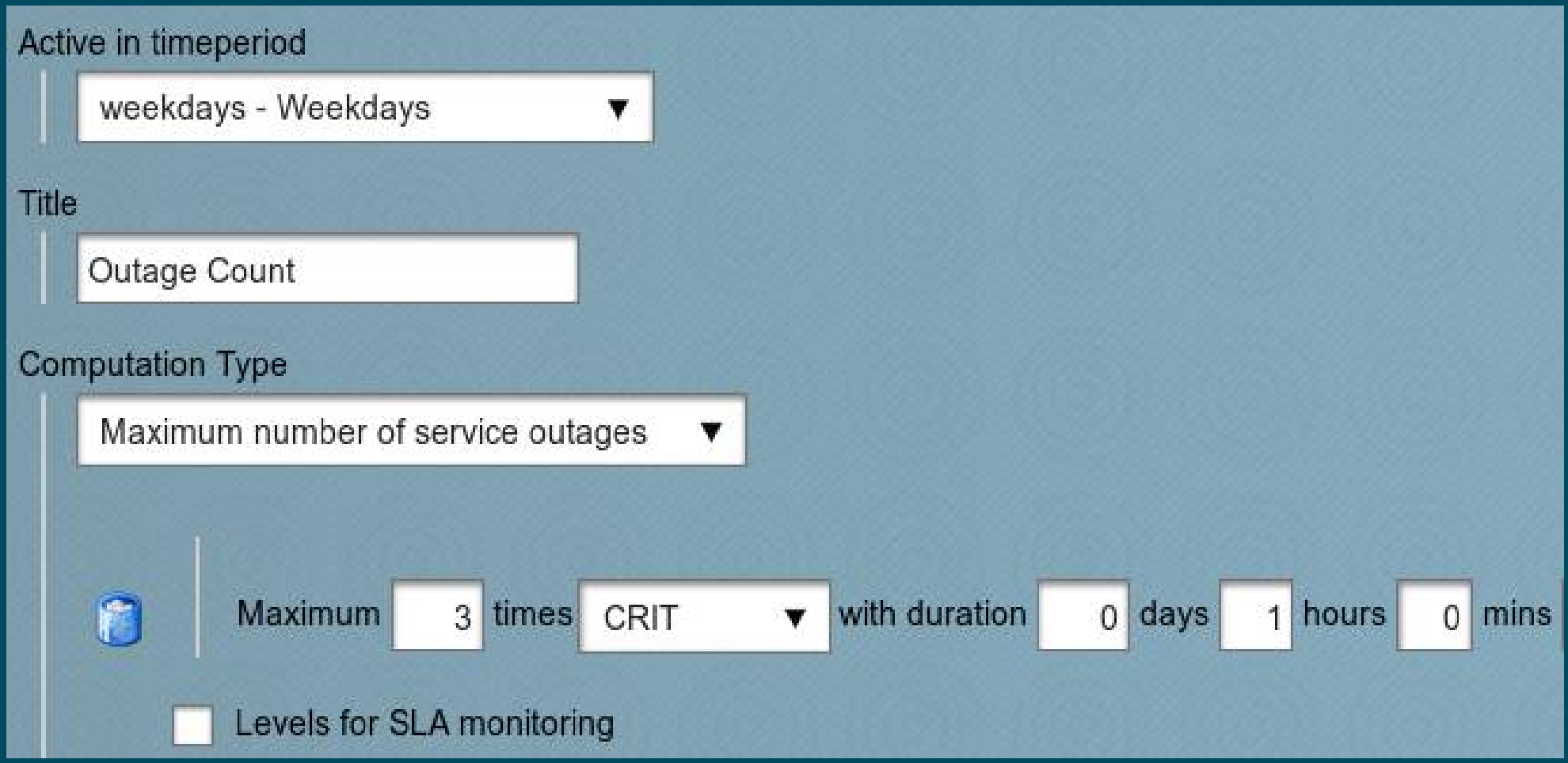
Approach

Create SLA Definition
- Set period
- Configure requirements
- Optional: Configure levels

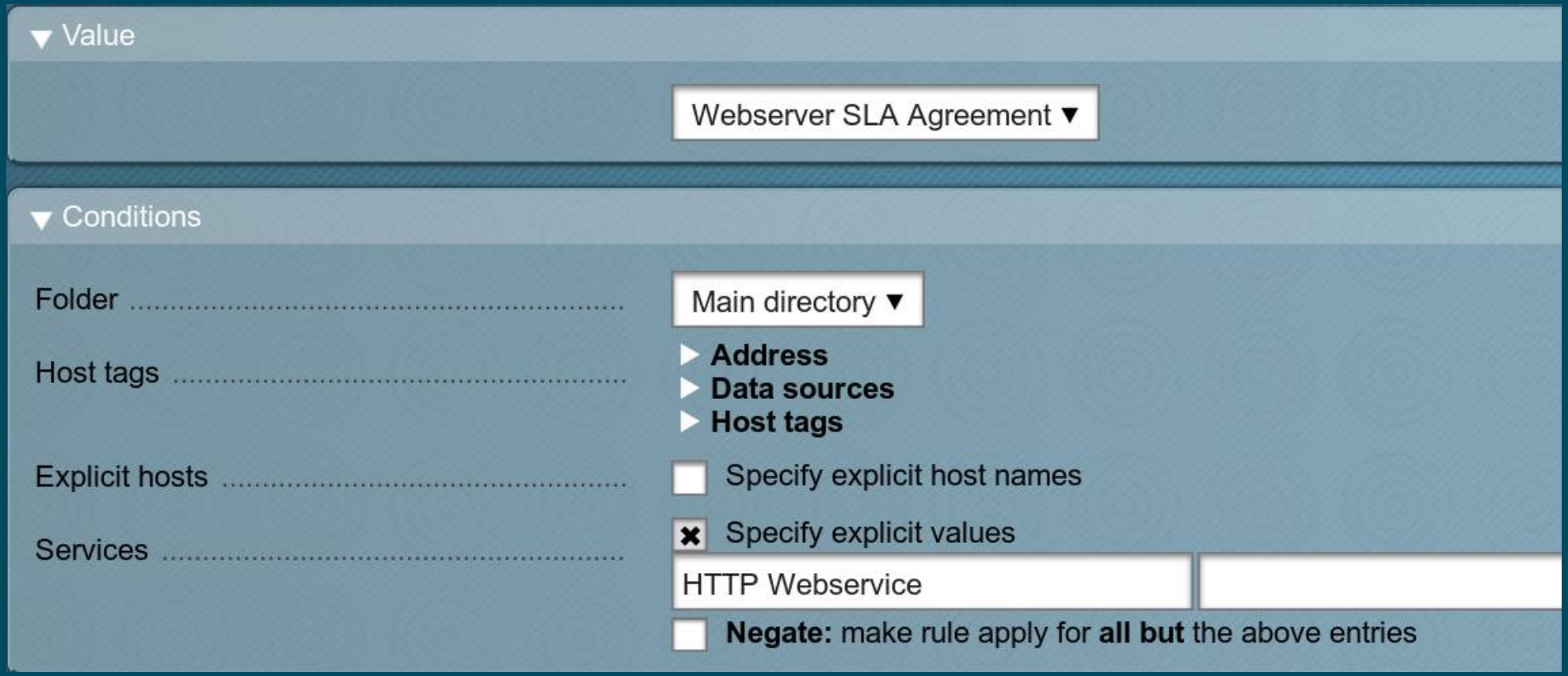
Assign SLA to service

Done!
- SLA available in views
- SLA exportable as PDF
- SLA usable in checks

Create SLA definition



Assign SLA definition to service

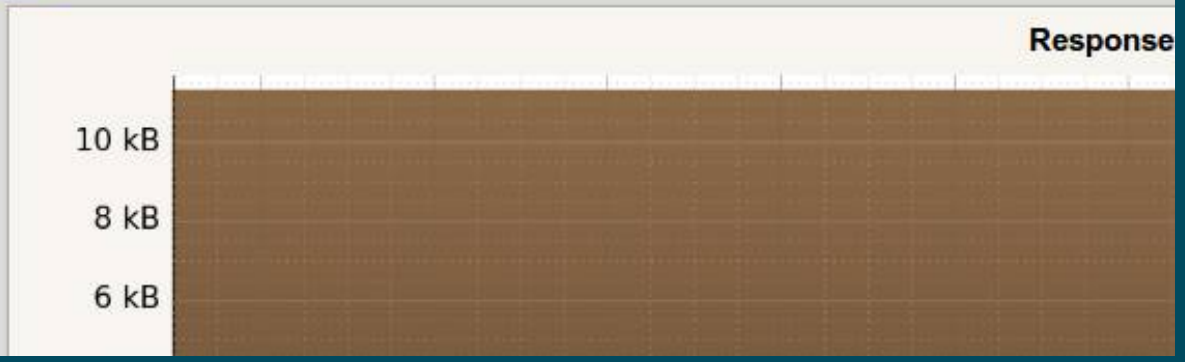


Services overview

Provider, Local site sla2, Loadbalancer

State	Service	Icons	Status detail	Age	Checked	Perf-O-Meter	SLA
OK	Check_MK		OK - [agent] Version: 1.4.0-2018.04.19, OS: linux, execution time 0.1 sec	347 m	46.4 s	131 ms	
OK	CPU load		OK - 15 min load 0.41 at 8 Cores (0.05 per Core)	31 h	46.4 s	0.700	
OK	CPU utilization		OK - user: 6.6%, system: 0.8%, wait: 0.0%, steal: 0.0%, guest: 0.0%, total: 7.5%	31 h	46.4 s	7.5%	
OK	CUPS Queue HP-Color-LaserJet-4700		OK - is idle. enabled since Wed Mar 28 17:23:23 2018	31 h	4 m		
OK	CUPS Queue HP-Officejet-Pro-8600		OK - is idle. enabled since Wed Mar 28 17:22:22 2018	31 h	4 m		
OK	Disk IO SUMMARY		OK - Utilization: 0.1%, Read: 190.82 kB/s, Write: 143.74 kB/s, Average Wait: 0.19 ms, Average Read Wait: 0.09 ms, Average Write Wait: 0.20 ms, Latency: 0.10 ms, Average Queue Length: 0.00	31 h	46.4 s	190.82 kB/s / 143.74	
WARN	Filesystem /		WARN - 86.6% used (140.68 of 162.51 GB), (warn/crit at 80.00/90.00%), trend: +173.27 MB / 24 hours	31 h	46.4 s	86.6%	
OK	Filesystem /boot/efi		OK - 10.7% used (21.16 of 196.91 MB), trend: 0.00 B / 24 hours	31 h	46.4 s	10.7%	
OK	HTTP Webservice		HTTP OK: HTTP/1.1 200 OK - 11595 bytes in 0.001 second response time	31 h	10.4 s	577 µs	Outage Count O O O C O O
CRIT	Interface 2		CRIT - [eth0] on Loadbalancer: (down) CRIT MAC: 8A:63:DF:78:89:F7, speed unknown	286 m	46.4 s		
OK	Kernel Context Switches		OK - 6336/s	31 h	46.4 s	6335.93/s	
	Kernel Major						

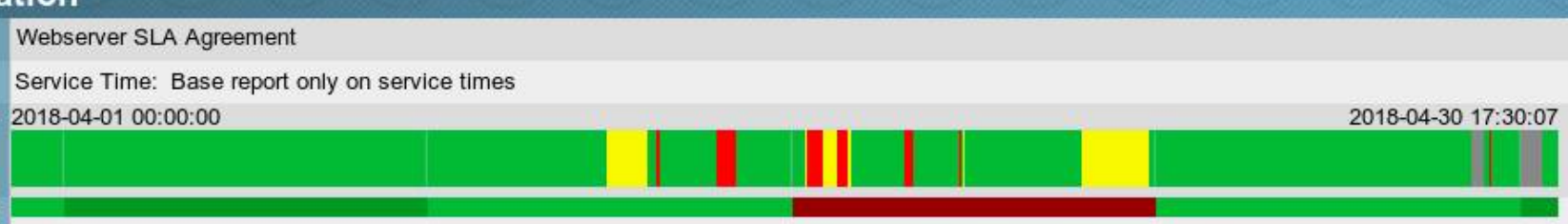
Service details

Host customer	Provider
Site alias	Local site sla2
Hostname	Loadbalancer
Service description	HTTP Webservice
Service icons	
Service state	OK
Output of check plugin	HTTP OK: HTTP/1.1 200 OK - 11595 bytes in 0.001 second response time
Service specific SLA	Outage Count O O O C O O
Long output of check plugin (multiline)	
Service Perf-O-Meter	
Service Graphs	

SLA details

General information

SLA name	Webserver SLA Agreement
Availability options	Service Time: Base report only on service times
Availability	2018-04-01 00:00:00 … 2018-04-30 17:30:07
Aggregated SLA results	



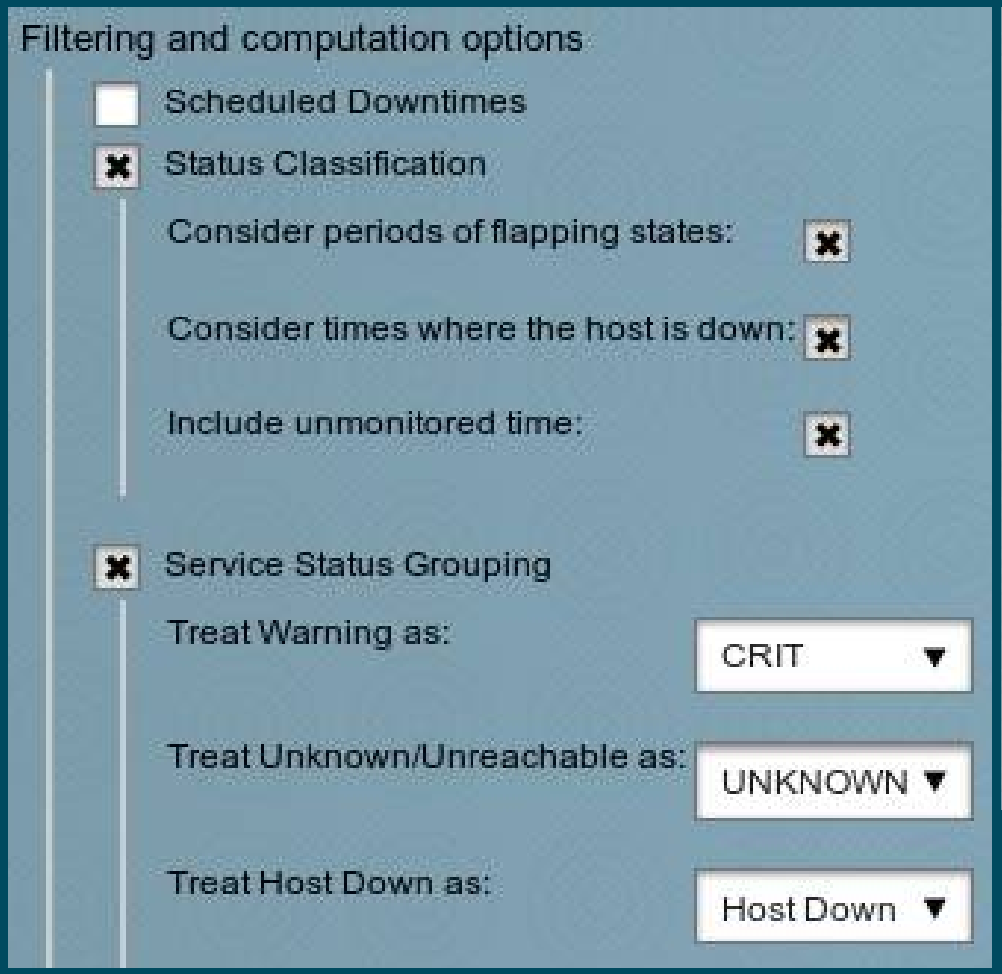
Computation plugin information

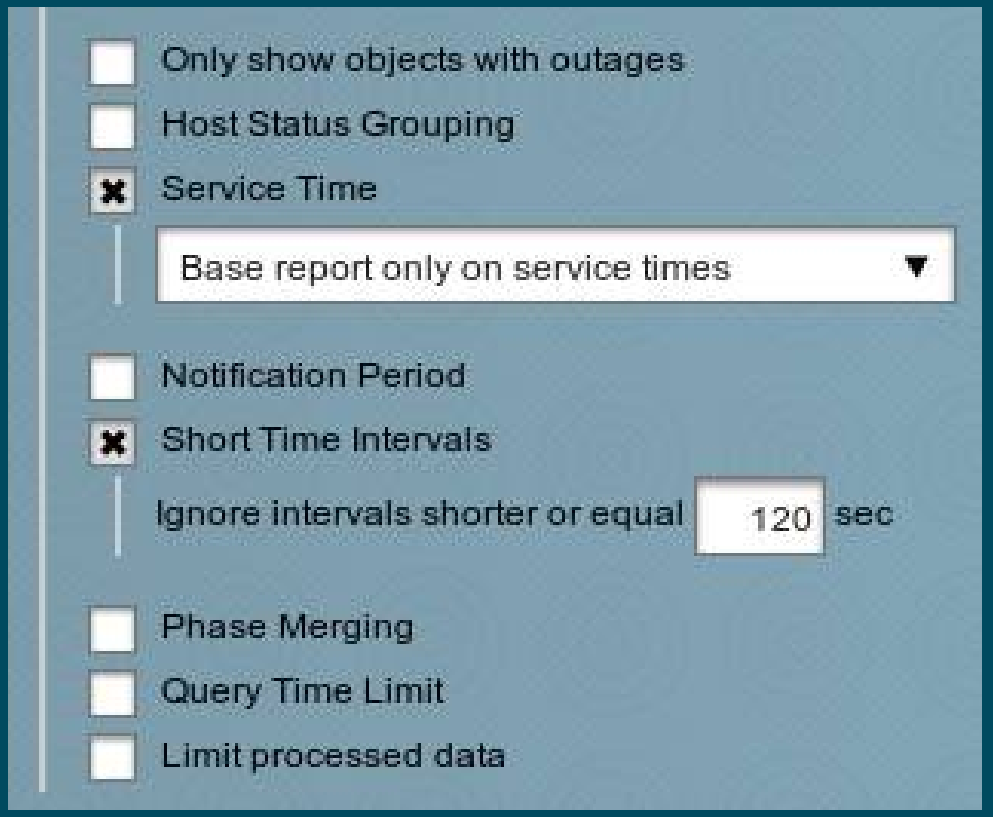
Computation result: Outage Count - Weekdays

Timeline	
Result	
Conditions	State CRIT Maximum 3 instances of duration greater than 1:00:00
Problem Details	**Expand**

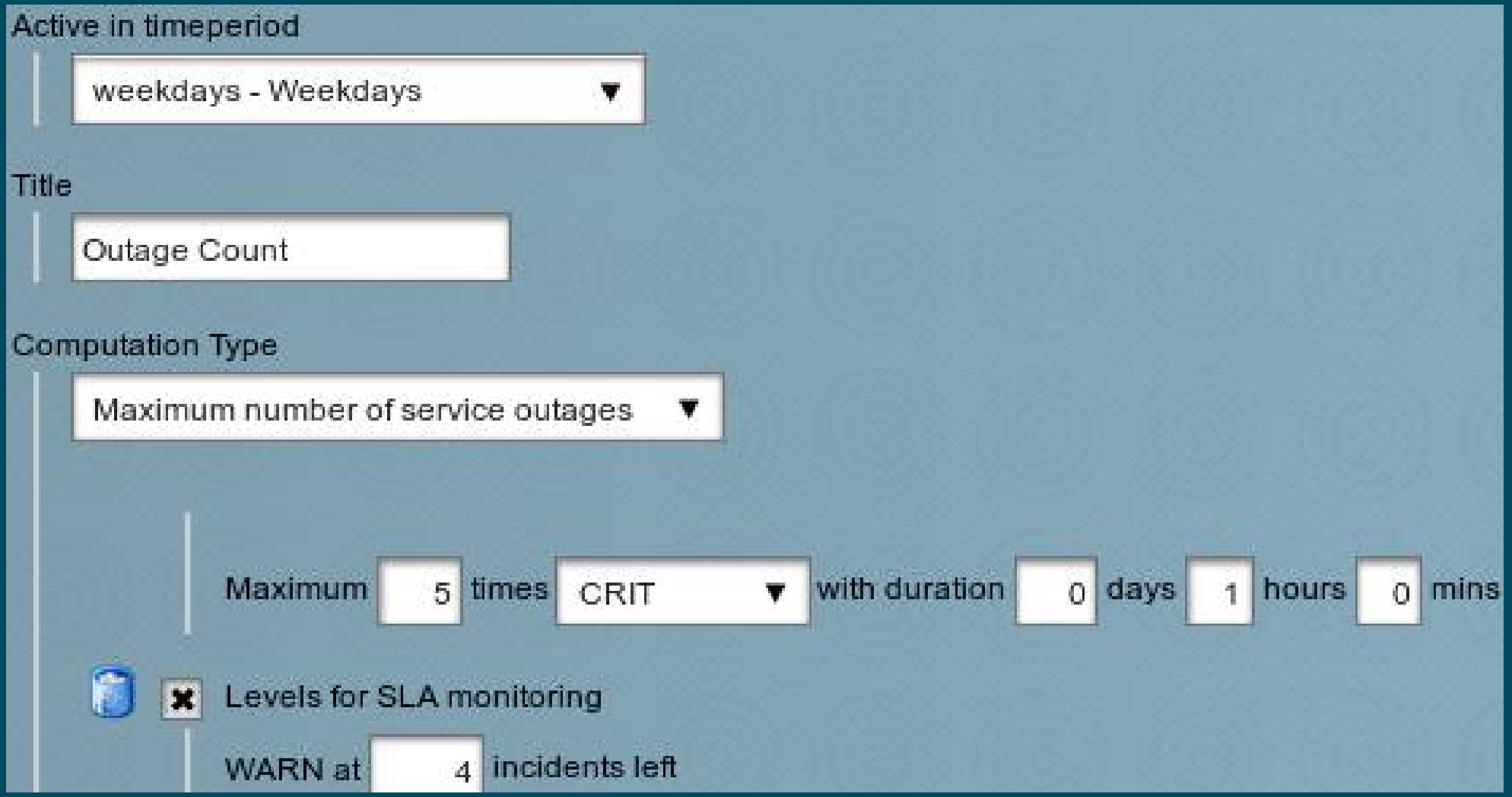
From	Until	Duration	Percentage	State	Last Known Plugin Output
2018-04-13 09:07:49	2018-04-13 10:47:49	1:40:00	0.992%	CRIT	HTTP CRITICAL: HTTP/1.1 200 OK - 11595 bytes in 2.790 second response tim
2018-04-16 06:34:29	2018-04-16 14:17:49	7:43:20	4.597%	CRIT	HTTP CRITICAL: HTTP/1.1 200 OK - 11595 bytes in 2.230 second response tim
2018-04-16 20:27:49	2018-04-17 00:00:00	3:32:11	2.105%	CRIT	HTTP CRITICAL: HTTP/1.1 200 OK - 11595 bytes in 2.230 second response tim
2018-04-17 21:27:49	2018-04-18 00:00:00	2:32:11	1.510%	CRIT	HTTP CRITICAL: HTTP/1.1 200 OK - 11595 bytes in 2.980 second response tim
2018-04-18 22:27:49	2018-04-18 23:30:00	1:02:11	0.617%	CRIT	HTTP CRITICAL: HTTP/1.1 200 OK - 11595 bytes in 2.303 second response tim

Availability options





SLA monitoring levels



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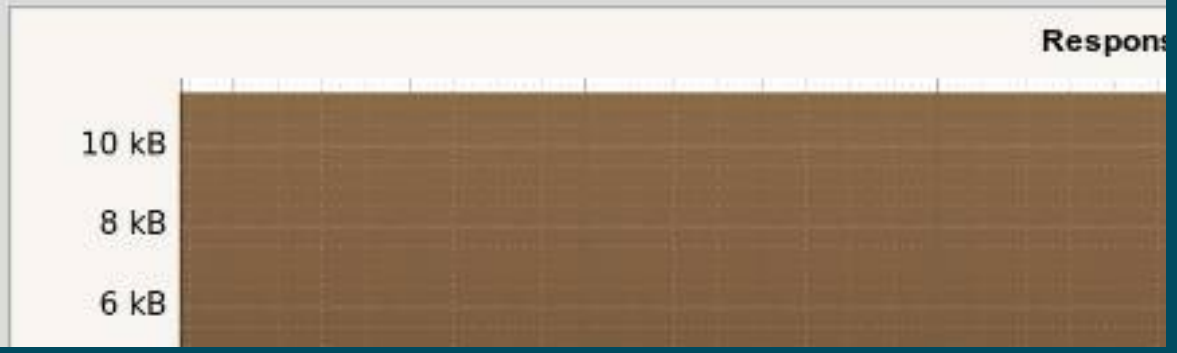
Service Graphs	

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Management Board Monitoring

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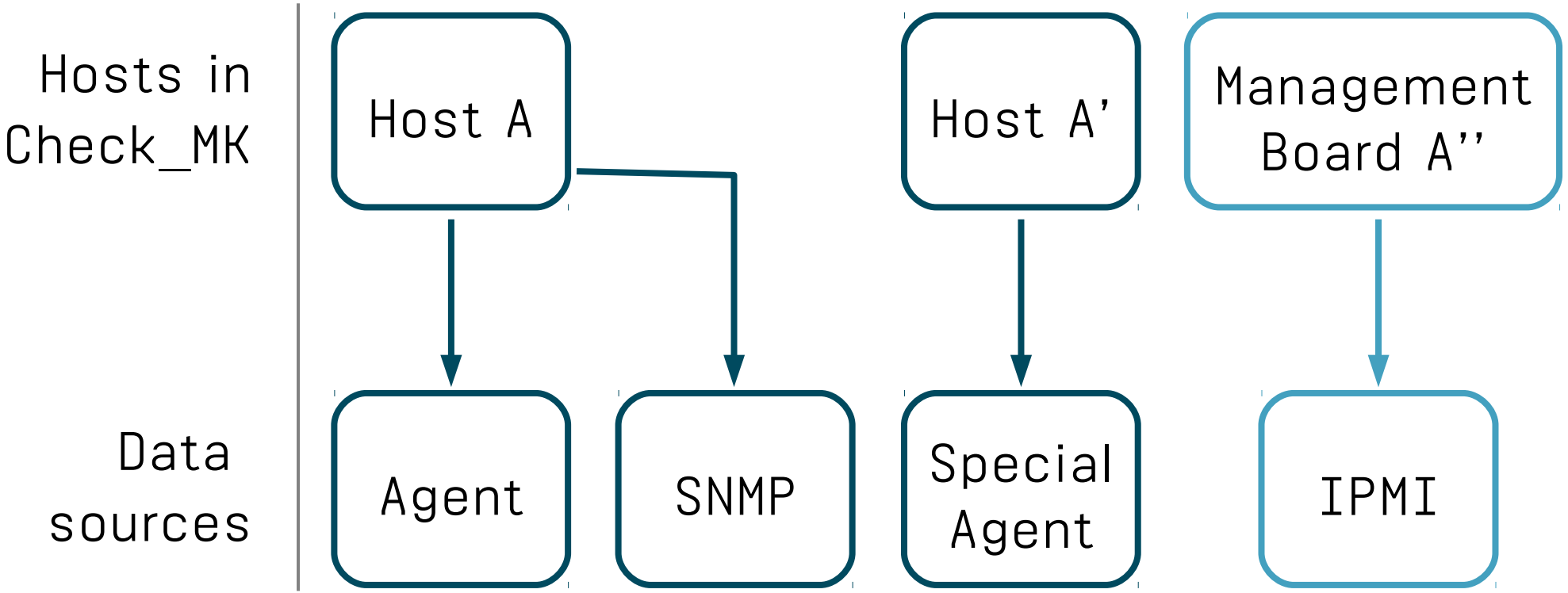
Monitoring a server with IPMI interface

Problem:
Management boards were separate hosts



How to relate mgmt. boards to hosts?

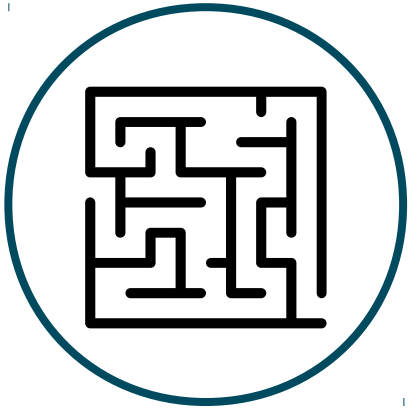
state	Host	Icons	OK	W
UP	heute		30	
UP	management-board-1		0	
UP	mgmt-ubuntu-456		0	
UP	server-windows-oracle-locks		87	
UP	super-host-123-klaus		1	
UP	super-mgmt-board-321		1	
UP	switch-intern		5	
UP	ubuntu-123		0	
UP	ubuntu-123-01		0	
UP	ubuntu-123-02		0	
UP	ubuntu-123-MGMT		0	

Not OK

"OK"

Overall: this is confusing for users

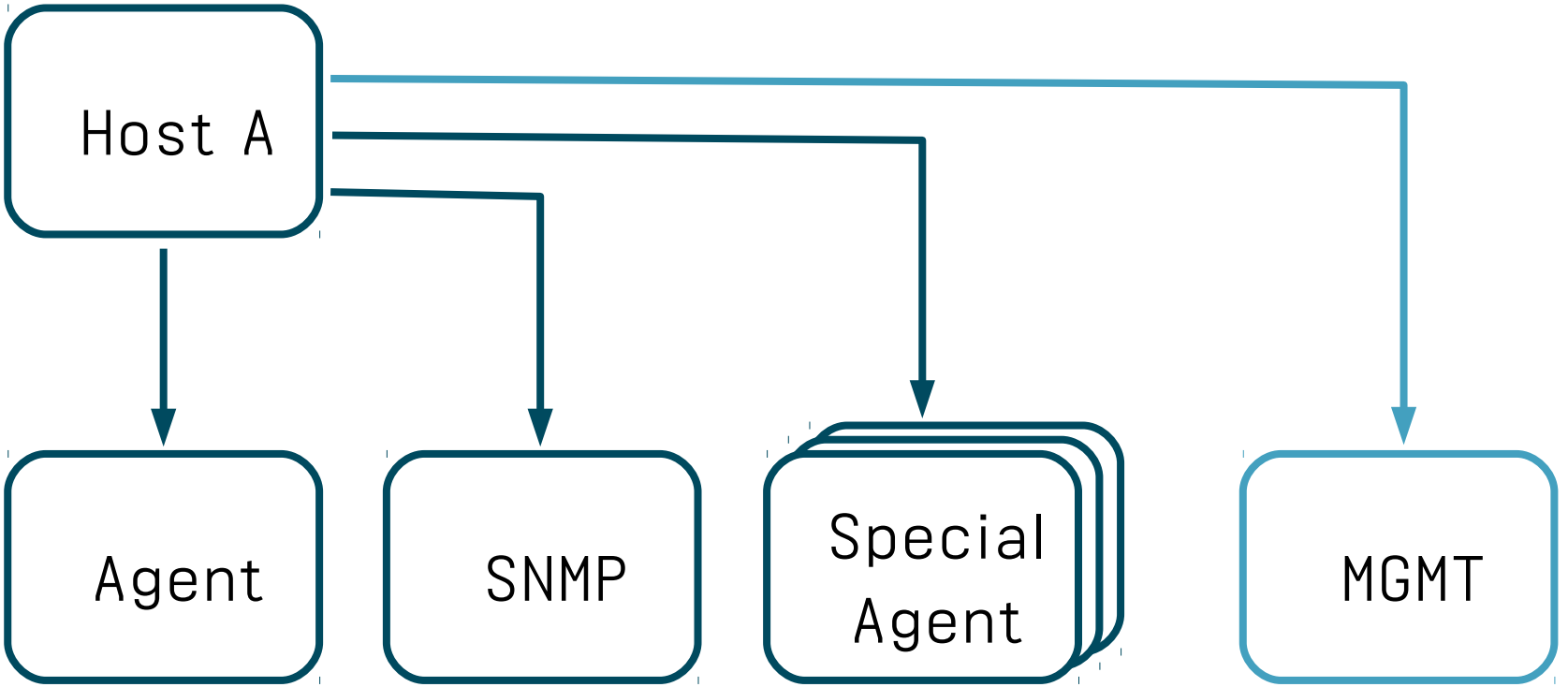
unclear



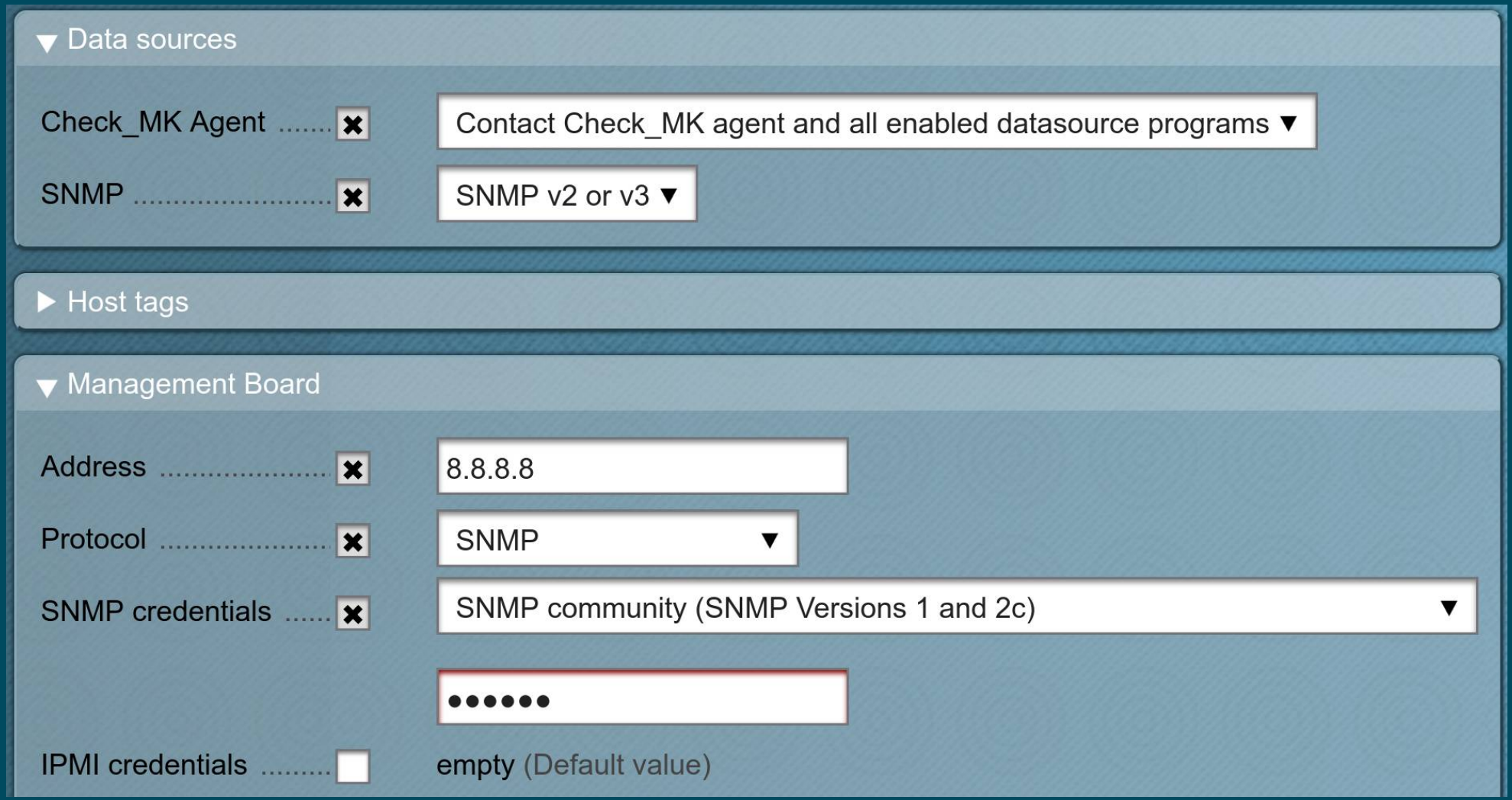
complicated

counter-intuitive

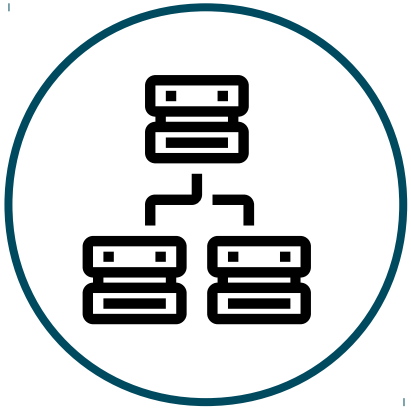
Improvement:
Hosts can have multiple data sources



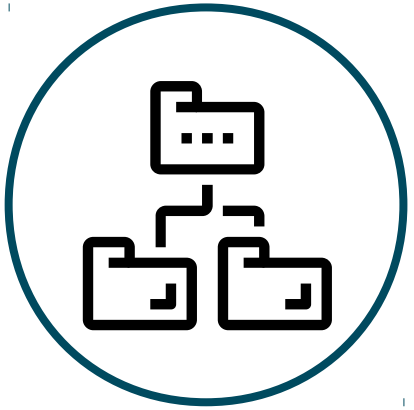
How to configure...



Two management board protocols are supported out-of-the-box



SNMP



IPMI

… further ones are easy to implement

Where can I find mgmt. board infos now?

… listed as services within a host

State	Service	Status detail
OK	Management Interface: Uptime	Up since Tue Apr 24 17:22:20 2018
OK	Uptime	Up since Tue Apr 24 22:17:20 2018

… **share code**

… **have prefix** “Management Interface:”

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Dynamic data in HW-/SW-Inventory
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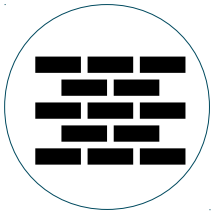
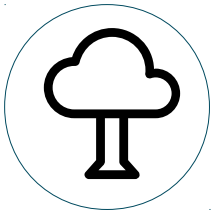
The classical inventory tree: static



contains static data



defines tree structure

How it looks like...

Hardware

▼ Memory (RAM)

Total swap space	125.00 GB
Total usable RAM	64.00 GB

Networking

Software

▼ Applications

▼ Oracle DB

▼ Instances

SID	Version	Open mode	Log mod
ABC	12.1.0.2.0	OPEN	ARCHIV

▼ Tablespaces

SID	Name	Version	Type	Autoextensible	
ABC	MARKER		PERMANENT	YES	

Problem: handling of dynamic data ...

OK	ORA ABC.ROOT Tablespace		OK - ONLINE (PERMANENT), Size: 5.54 TB, 92.9% used (5.39 TB of max. 5.80 TB), Free: 1.65 TB, 267 increments (260.74 GB), 198 data files (198 avail, 198 autoext), DB Version: 0

... is basically unstructured

... does not fit into inventory tree

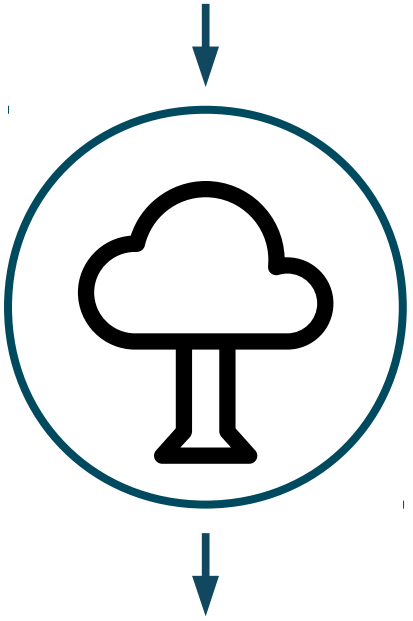
Why combine inventory & monitoring data?

Full information
of one “thing”,
eg. tablespace

Decision aid:
“Do I still need this
tablespace?”

Goal: Bring dynamic data into inventory

OK	ORA ABC.ROOT Tablespace		OK - ONLINE (PERMANENT), Size: 5.54 TB, 92.9% used (5.39 TB of max. 5.80 TB), Free: 1.65 TB, 267 increments (260.74 GB), 198 data files (198 avail, 198 autoext), DB Version: 0

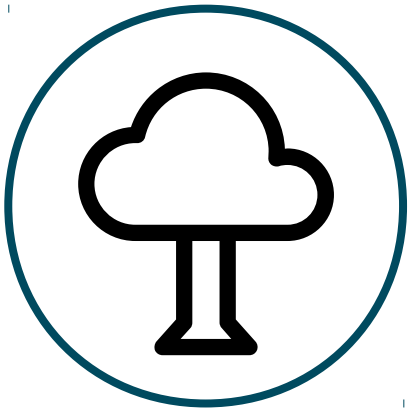


Export of monitoring and static data

Easy integration into inventory plugins

Implementation: two trees

HW/SW Inventory tree



Monitoring data tree

Characteristics of the trees

HW/SW Inventory tree

defines structure

static data

is tracking history

Monitoring data tree

same structure

dynamic data

no history

Trees merge in combined view

Merged tree ready for export and GUI

▼ Tablespaces

SID	Name	Type	Autoextensible	Current size
ABC	MARKER	PERMANENT	YES	20.00 MB
ABC	SYSTEM	PERMANENT	YES	4.37 GB
ABC	WHATSUP	UNDO	YES	9.77 GB
ABC	ROOT	PERMANENT	YES	5.54 TB
ABC	SHORTLIFETIME	TEMPORARY	YES	191.41 GB
ABC	BAR	PERMANENT	YES	22.95 GB
ABC	FOO	PERMANENT	YES	20.00 GB

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Analyze your configuration

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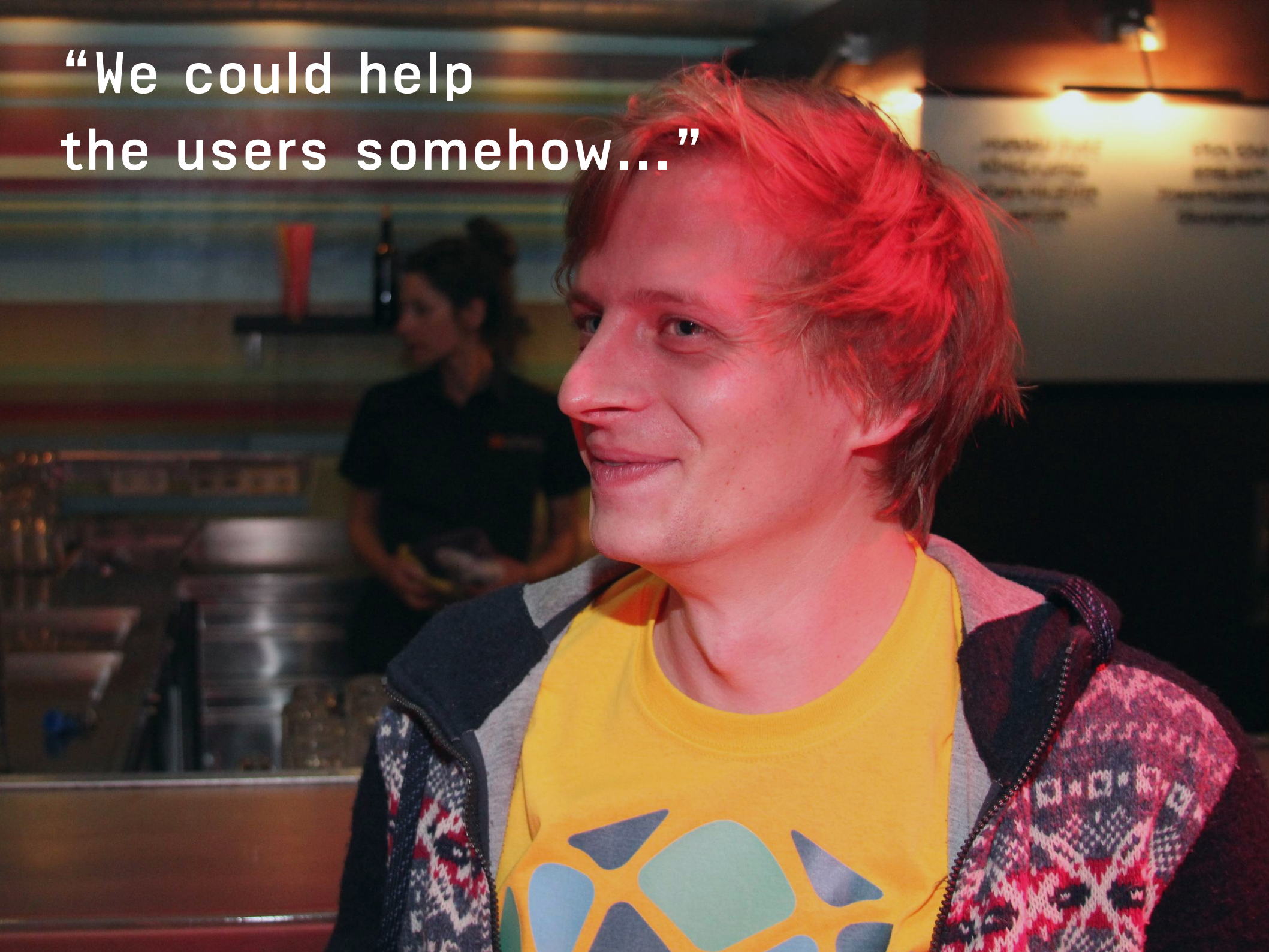
Reasons to analyze configuration

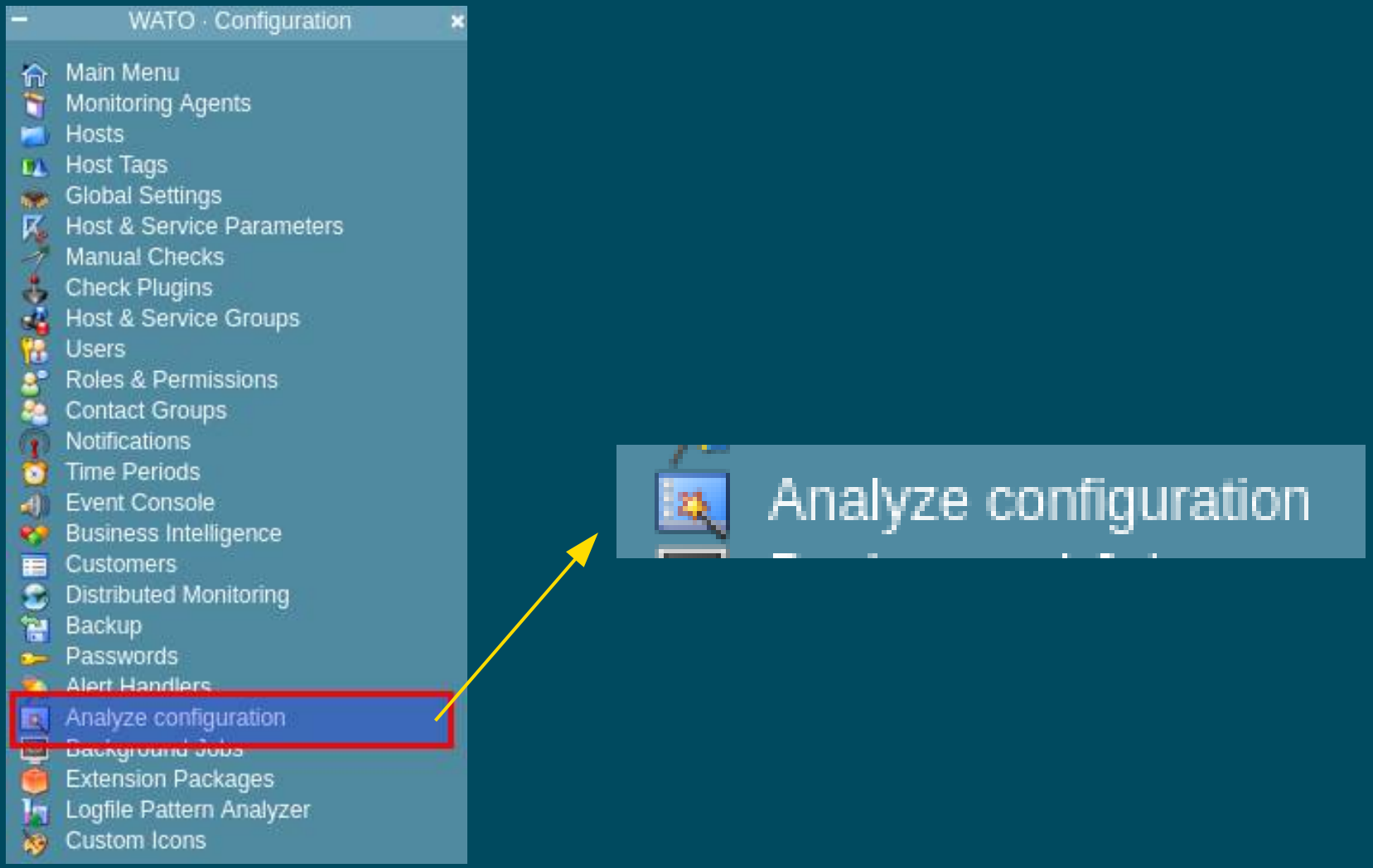
Performance

Reliability

Security


“We could help
the users somehow...”

...and a few months later a new feature was born!

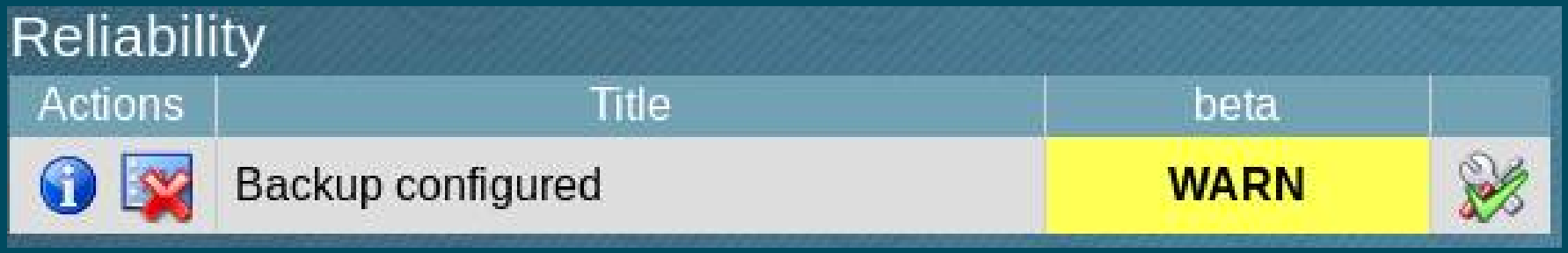


Performance

Performance

Actions	Title	beta	
	Apache number of processes	WARN	
	Apache process usage	OK	
	Check helper usage	OK	
	Check_MK helper usage	OK	
	Livestatus usage	OK	
	Number of users	OK	
	Persistent connections	OK	
	Use Livestatus Proxy Daemon	WARN	

Reliability



Security

Security

Actions	Title	beta	
	Encrypt backups	OK	
	Secure GUI (HTTP)	WARN	
	Secure LDAP	WARN	

Conclusion

What do you want Check_MK to analyze next?

...write further ideas to feedback@check-mk.org!

So long

and thanks for all the fish!

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Appliance News

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1. "Transtec-Generation"

2. Model Overview

3. New Firmware

4. Distribution network USA

rack1 Mark II / rack4 mark I "Transtec Generation"

- Manufacturer Transtec
- First delivery problems after a short time
- The insolvency proceedings were opened on 27.07.2017
- Support of the already supplied appliances remains ensured

Model Overview

Check_MK rail2 Mark I

- Intel Q7 E3845 1.91 GHz
- 4 GB Memory
- 16GB Industrial SD-Card

Check_MK rack1 mark III

- Intel Xeon E5-2603 1.7 GHz/6-core
- 16 GB Ram DDR4 ECC
- 2 x 1TB 2.5" HDD

Check_MK rack4 mark II

- 2x Xeon Silver 2.1GHz/12-core
- 64 GB DDR4 Memory ECC
- 2 x 460GB SSD

Firmware 1.4.x

OS Debian 9 LTS

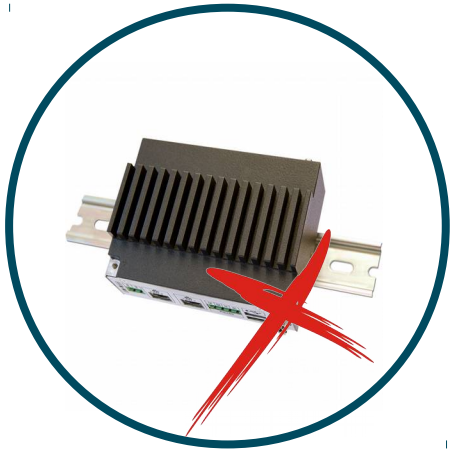
Support Until June 2022

Update compatible to Firmware 1.3.x

New Distribution Partner for the USA

TruePath Technologies

- Local Partner
- Support in the same timezone
- Direct shipping from USA



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