

OMD und Check_MK

Jörg Meltzer

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Zielgruppe

- Sysadmins
 - Neue Wege Nagios zu administrieren kennenlernen
- Entwickler
 - Auch mal Monitoring selber machen können
- Manager (Achtung Vortrag enthält Code)
 - OSS Monitoring Tools im Unternehmen einsetzen

Über mich

- Administrator für Infrastruktur und Anwendungen
- Business Intelligence Spezialist
- Häufig Projekte zu Environment Support & Monitoring

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Warum OMD und Check_MK

- Ich bin kein Nagios Guru
- hoffe mit OMD und Check MK Monitoring Aufgaben besser zu verteilen
- Zeit für andere Admin Tätigkeiten

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Open Monitoring Distribution & Check_MK



Einführung

OMD - Distribution für Monitoring Tools

Check_MK – GUIs

Check_MK – Agent

Check_MK – Checks

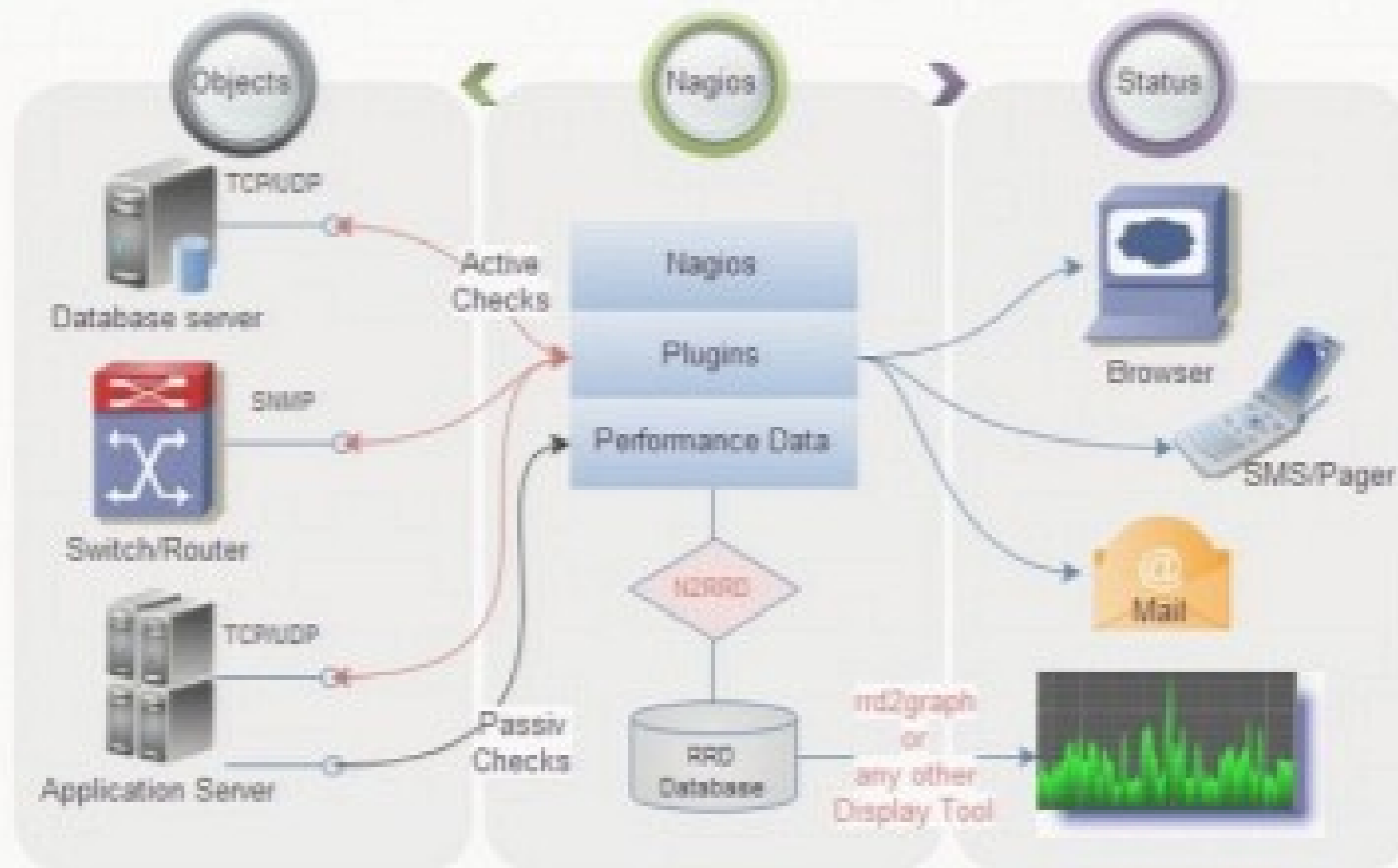
Customizing Check_MK

Nagios - Verbreitung

- Industrie Standard für Infrastruktur Monitoring
- 250.000 User (2010)
- Open Source
- Große Community
- Viele Plugins
- Forks (Icinga, Shinken,...)

- Basis für OMD und Check_MK

Nagios - Architektur



Gartner sagt ...

**Got Nagios?
Get rid of it!**

Nagios – Kritik

- Fehlt:
 - Konfigurations GUI

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 - Service Discovery

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 - Integration ITSM Tools

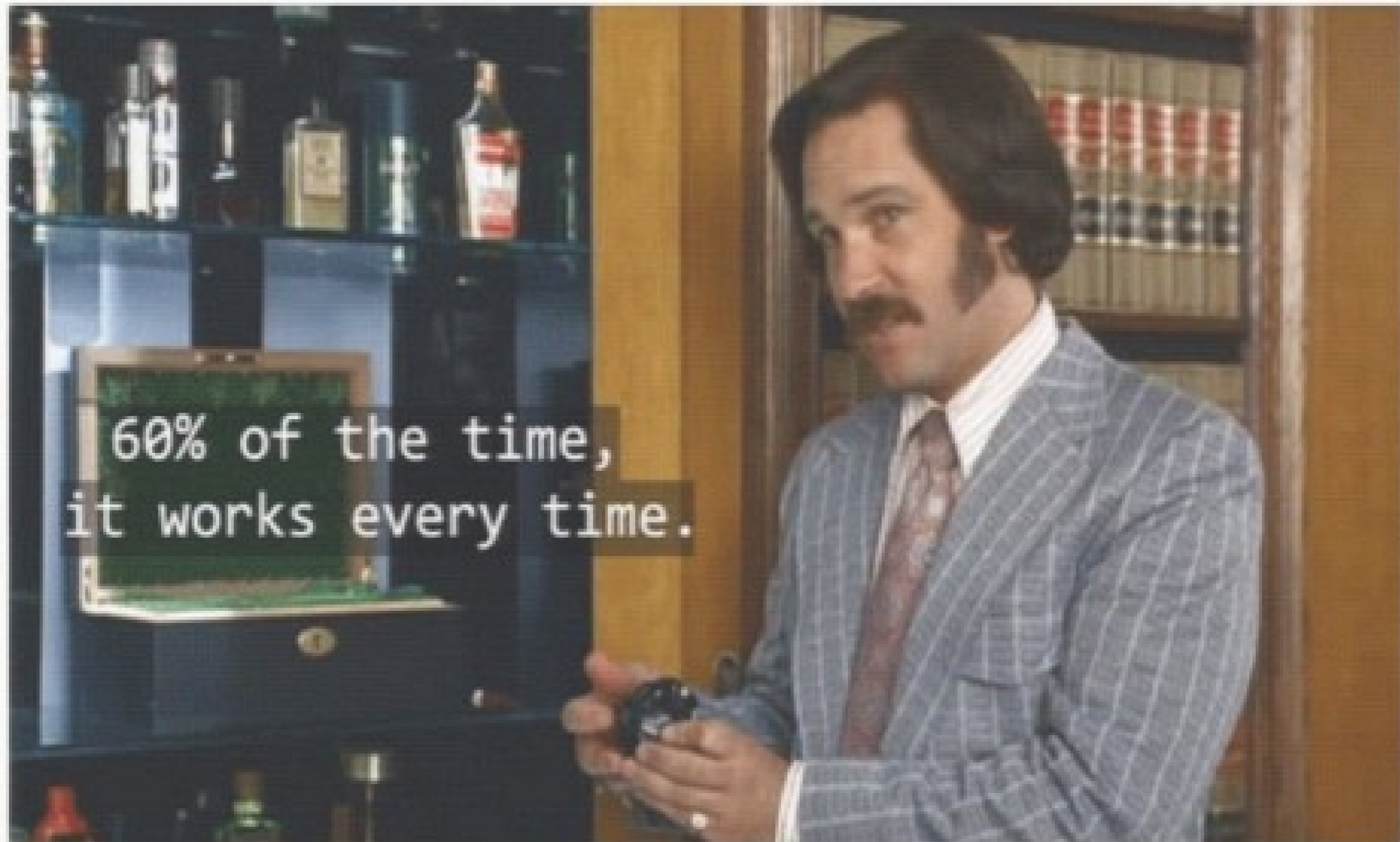
Nagios – Kritik

- Fehlt:
 - Konfigurations GUI
 - Service Discovery
 - Trend Graphen
 - Deployment Mechanismus für Monitoring Client Konfiguration
 - Integration ITSM Tools
- Manuelle Integration der Plugins

Neues Monitoring Tool

Got rid of Nagios.
Was nun?

Was tun wenn Features fehlen?



Was tun wenn Features fehlen?



Kommerzielles Tool mit Problemen?



Nagios ist noch nicht tot

Get Nagios back!

OMD + Check_MK

Mit OMD und Check_MK macht Nagios hacken wieder Spaß!



Mit OMD und Check_MK macht Nagios hacken wieder Spaß!



Check_MK Monitoring System – Nagios Refactoring

- Erfinder: Mathias Kettner (MK)
- Von Nagios, nur funktionierende Kernfeatures nutzen (Scheduling, Alarmierung)
- Konfiguration vereinfachen
- Service Discovery implementieren
- Data Collection und Service Prüfung trennen
- Monitoring Plugins integrieren

Check_MK Monitoring System

Check_MK

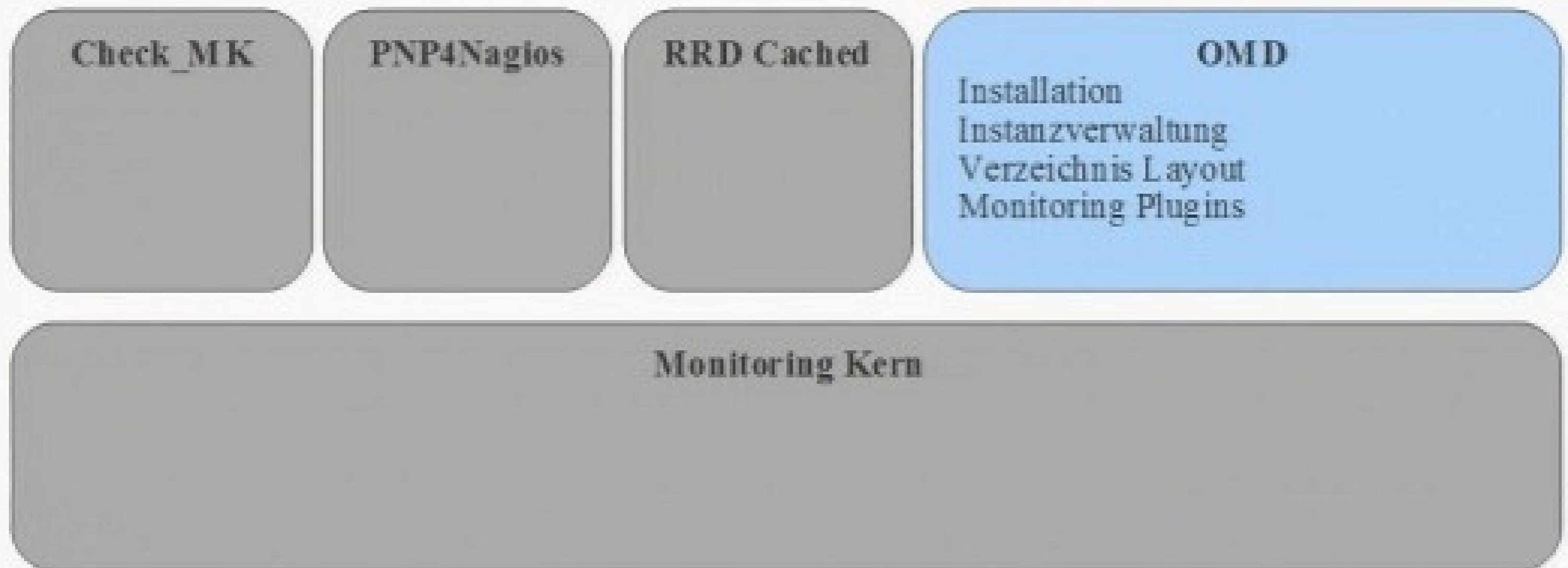
PNP4Nagios

RRD Cached

OMD

Monitoring Kern

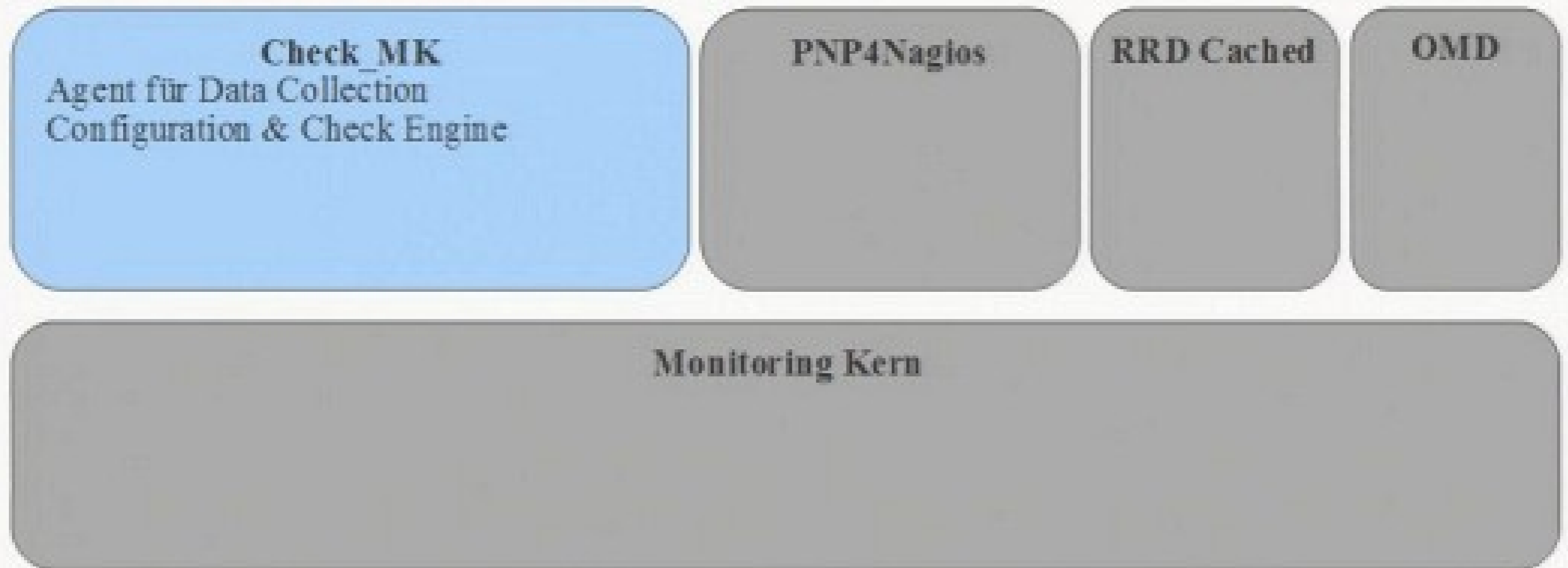
Check_MK Monitoring System



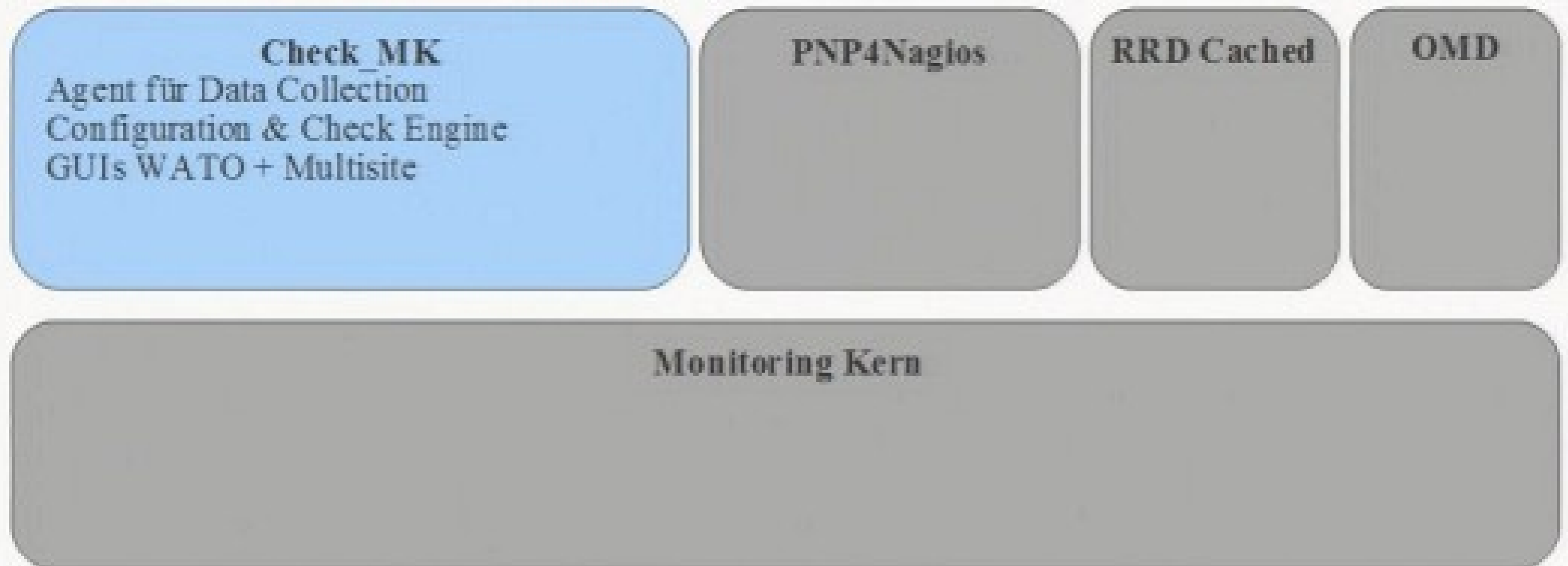
Check_MK Monitoring System



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Check_MK Monitoring System

Check_MK

PNP4Nagios

RRD Cached

OMD

Monitoring Kern

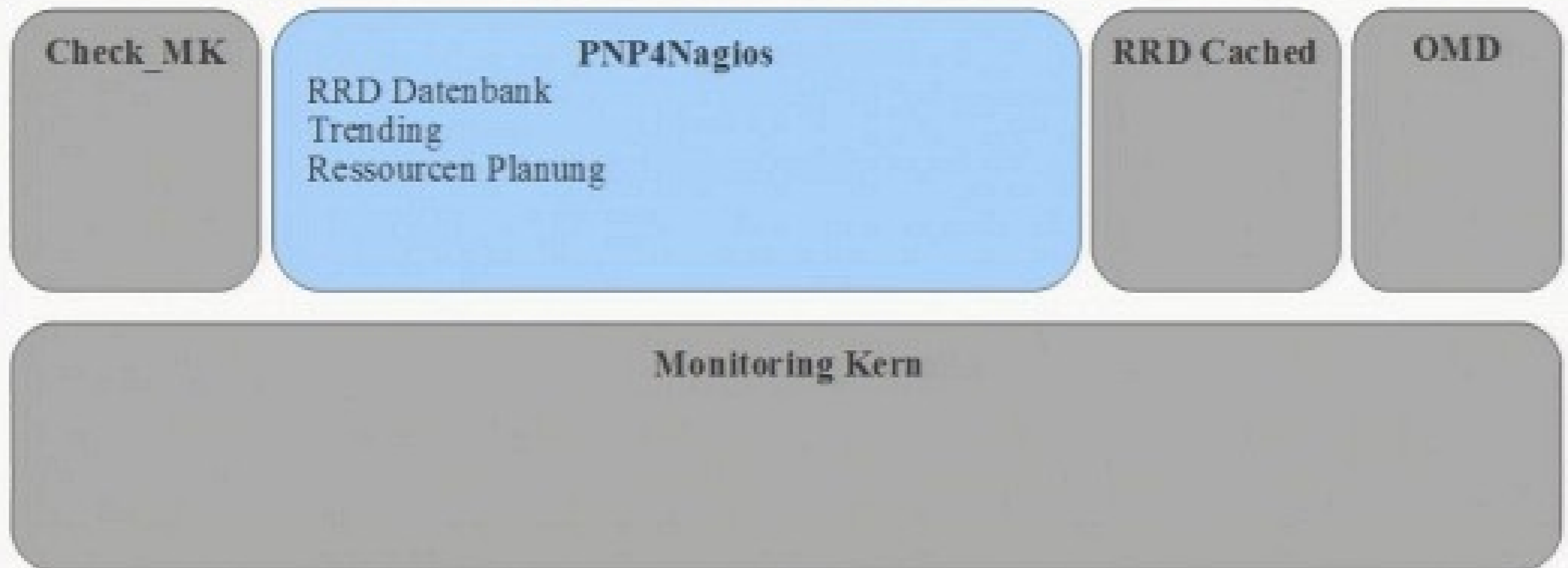
(Nagios, Icinga, Shinken, Thruk, ...)

Check (Durchführung) und Ergebnisverwaltung

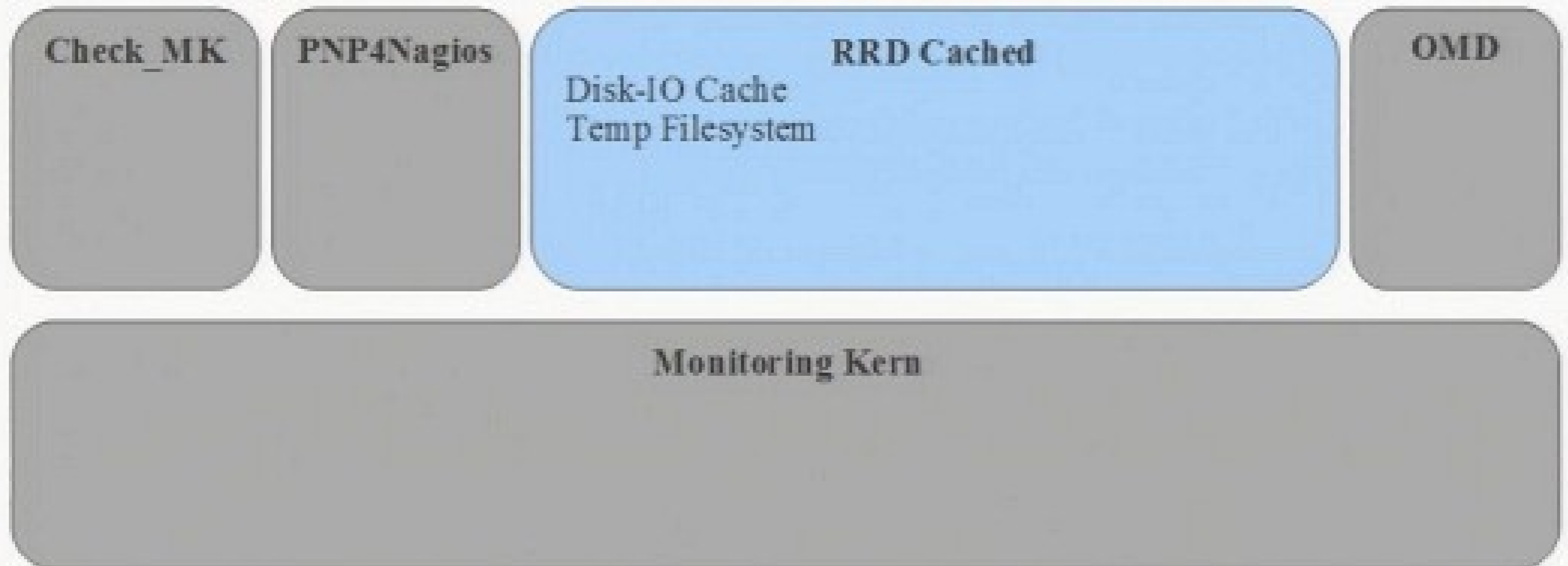
Alarmierung

Downtime Verwaltung

Check_MK Monitoring System



Check_MK Monitoring System



Open Monitoring Distribution & Check_MK

-  Nagios Historie
-  **OMD - Distribution für Monitoring Tools**
- Check_MK – GUIs
- Check_MK – Agent
- Check_MK – Checks
- Customizing Check_MK

Open Monitoring Distribution - OMD

- Vollständige Monitoring Lösung, enthält neben Monitoring Core
 - Apache, PNP4Nagios, NagVis, Check_MK, Livestatus, Multisite, RRD-Cached, Monitoring-Plugins, Crontab ...
- Ermöglicht Monitoring Server Installation ohne Expertenwissen

Open Monitoring Distribution - OMD

```
aptitude install omd-1.00  
aptitude install omd-1.10
```

Open Monitoring Distribution - OMD

```
aptitude install omd-1.00  
aptitude install omd-1.10  
  
omd create site  
omd create dev
```

Open Monitoring Distribution - OMD

```
aptitude install omd-1.00
aptitude install omd-1.10

omd create site
omd create dev

/omd/sites/site
insgesamt 12
lrwxrwxrwx  1 site site  11 Aug 23  2013 bin -> version/bin
drwxr-xr-x 26 site site 4096 Jan 24 21:46 etc
lrwxrwxrwx  1 site site  15 Aug 23  2013 include -> version/include
lrwxrwxrwx  1 site site  11 Aug 23  2013 lib -> version/lib
drwxr-xr-x  6 site site 4096 Jan 24 12:45 local
lrwxrwxrwx  1 site site  13 Aug 23  2013 share -> version/share
drwxr-xr-x 14 site site  320 Apr  3 17:56 tmp
drwxr-xr-x 15 site site 4096 Mär 28 09:37 var
lrwxrwxrwx  1 site site  19 Aug 23  2013 version -> ../../versions/1.00
```

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aptitude install omd-1.00
aptitude install omd-1.10

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omd create dev

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/omd/sites/site
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drwxr-xr-x 15 site site 4096 Mär 28 09:37 var  
lrwxrwxrwx  1 site site   19 Aug 23  2013 version -> ../../versions/1.10
```

You are going to update the site dev from version 1.00 to version 1.10. This will include updating all of you configuration files and merging changes in the default files with changes made by you. In case of conflicts your help will be needed.

Update!

< Abort >

Open Monitoring Distribution - OMD

```
OMD[site]:~$ omd
Usage (called as site user):

  omd help
  omd version      [SITE]
  omd versions
  omd sites
  omd update
  omd start        [SERVICE]
  omd stop         [SERVICE]
  omd restart      [SERVICE]
  omd reload       [SERVICE]
  omd status       [SERVICE]
  omd config       ...
  omd diff         ([RELEASE])
  omd umount
```


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Usage (called as site user):

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  omd restart      [SERVICE]
  omd reload       [SERVICE]
  omd status       [SERVICE]
  omd config       ...
  omd diff         ([RELEASE])
  omd umount
```

```
OMD[site]:~$ omd status
mkeventd:      running
apache:        running
gearmand:      running
rrdcached:     running
gearman_worker: running
npod:          running
icinga:        running
nsca:          running
crontab:       running
-----
Overall state: running
```

Open Monitoring Distribution & Check_MK

Nagios Historie

OMD - Distribution für Monitoring Tools

Check_MK – GUIs

Check_MK – Agent

Check_MK – Checks

Customizing Check_MK

Check_MK - Multisite

- Benutzerdefinierte Sichten und Sidebar
- Monitoring Konfiguration über „Web Administration Tool“ - WATO
- Verteiltes Monitoring

Host Statistics

Up	7
Down	0
Unreachable	0
In Downtime	0
Total	7

Service Statistics

OK	684
In Downtime	0
On Down Host	0
Warning	1
Unknown	0
Critical	13
Total	687

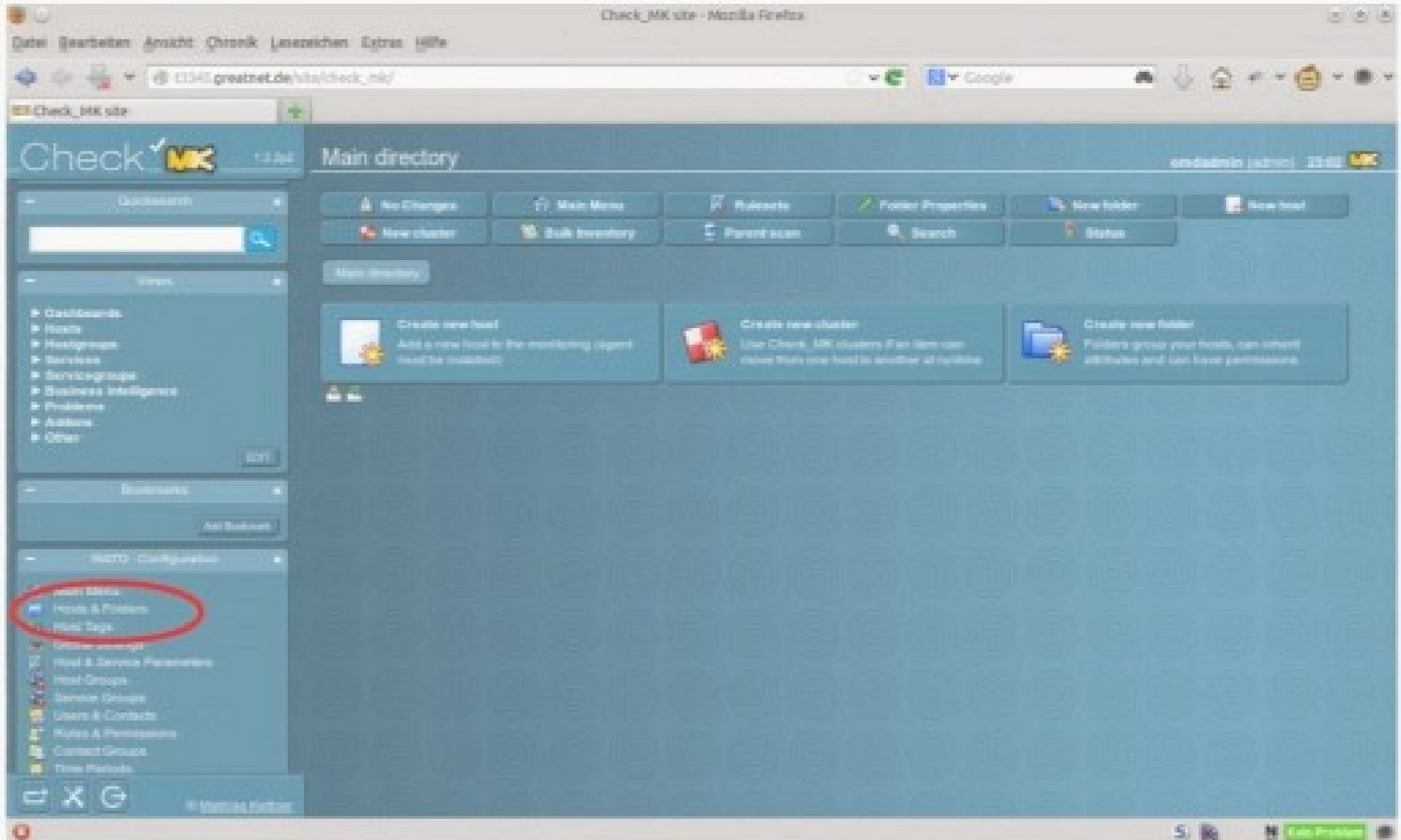
Service Problems (unhandled)

State	Host	Service	Score
CRIT	wash0021.xerhosts.de	SMART /dev/sda Stats	
CRIT	Diskstation	Memory_used	
CRIT	test	LOG /var/log/apache2/matthias-kettner.de/error.log	
CRIT	test	LOG /var/log/apache2/matthias-	

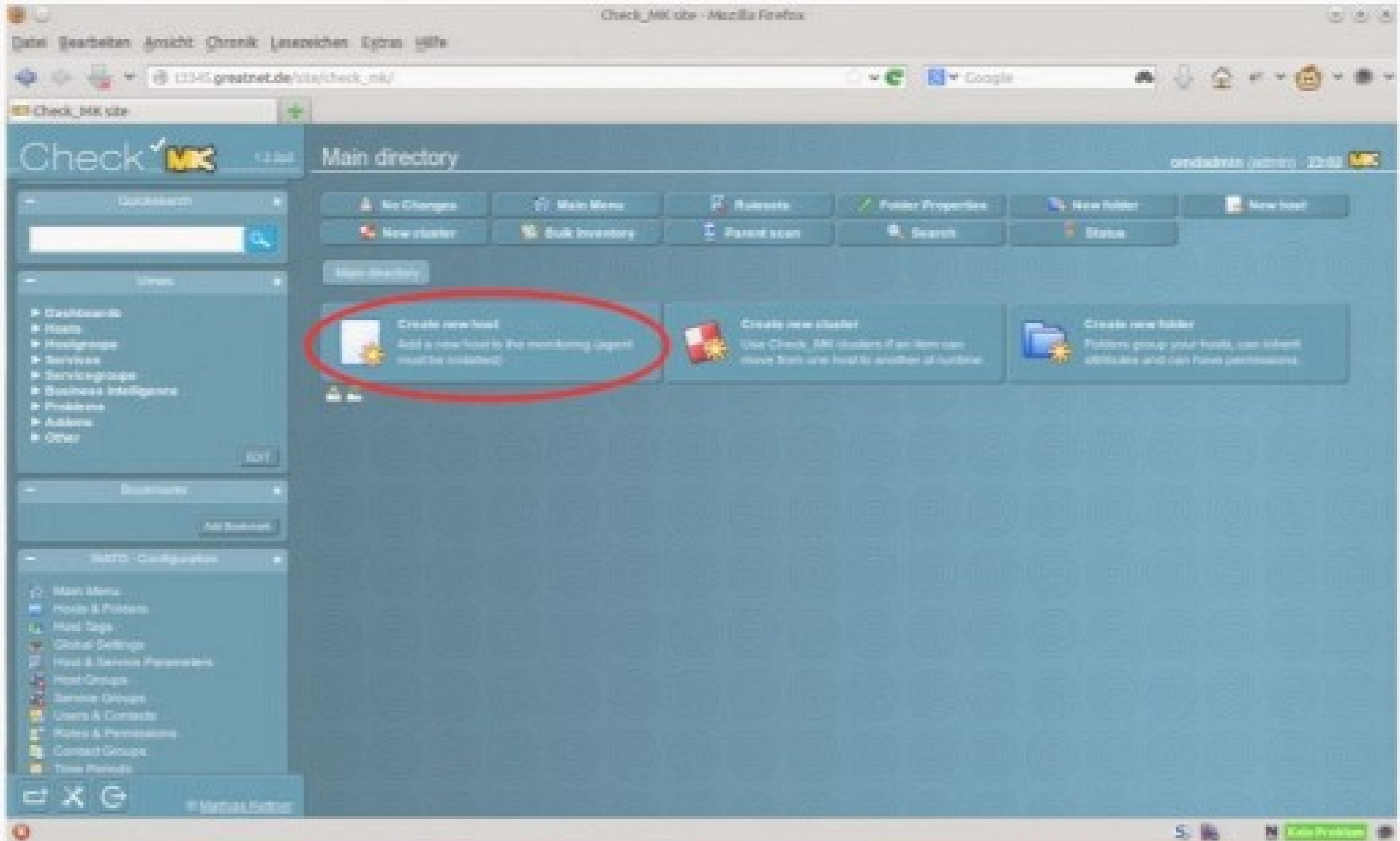
Events of recent 4 hours

Time	Host	Service	Check output
6 min	test	proc_apache	The service started flapping
6 min	test	proc_apache	OK - 45 processes
6 min	test	proc_apache	CRIT - 69 processes (ok from 1 to 60)
7 min	test	proc_apache	OK - 55 processes
7 min	test	proc_apache	CRIT - 61 processes (ok from 1 to 60)
35 min	test	proc_apache	The service stopped flapping
40 min	test	Postfix Queue	The service stopped flapping
44 min	test	proc_apache	The service started flapping

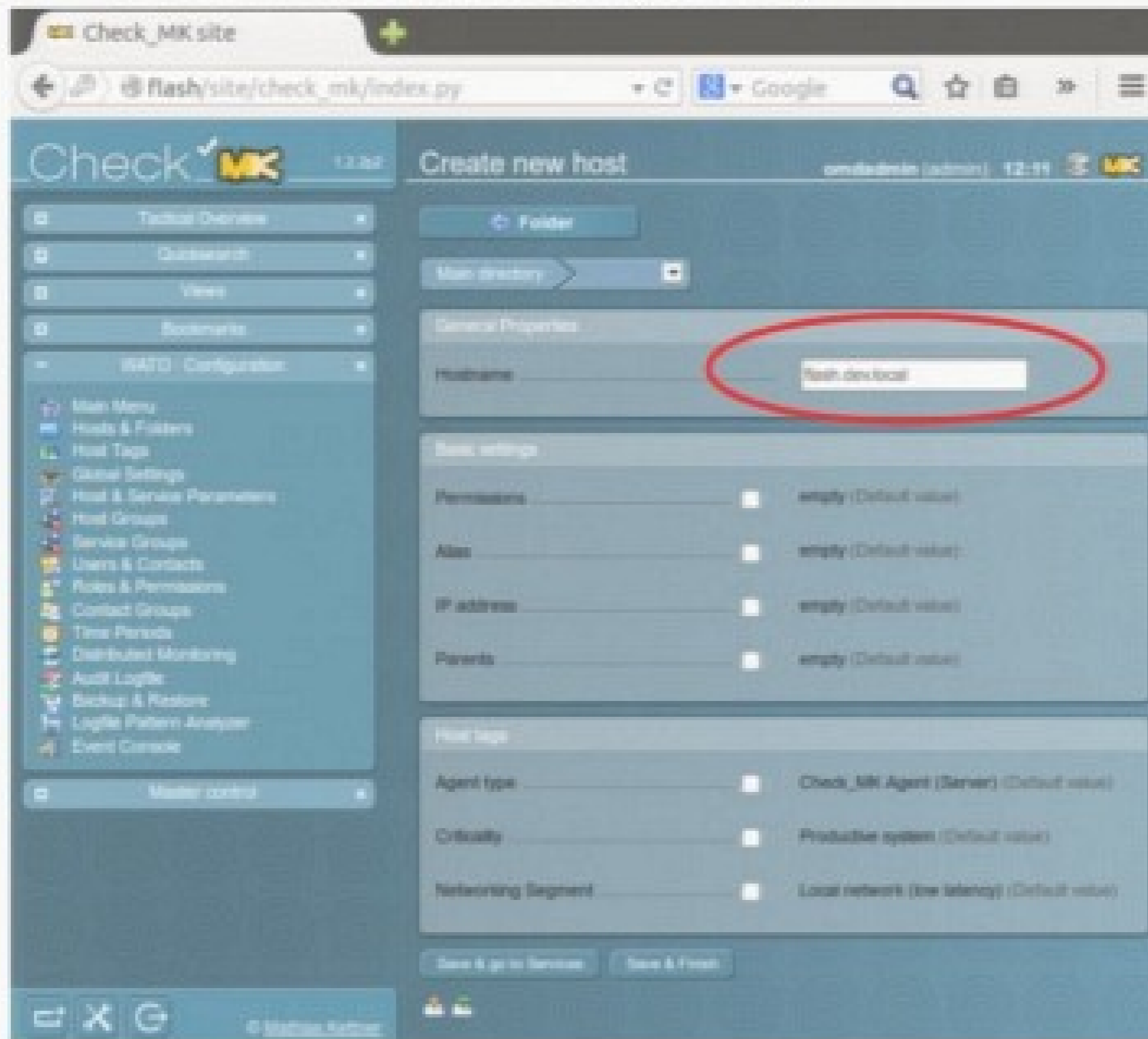
Check_MK – Web Administration Tool (WATO)



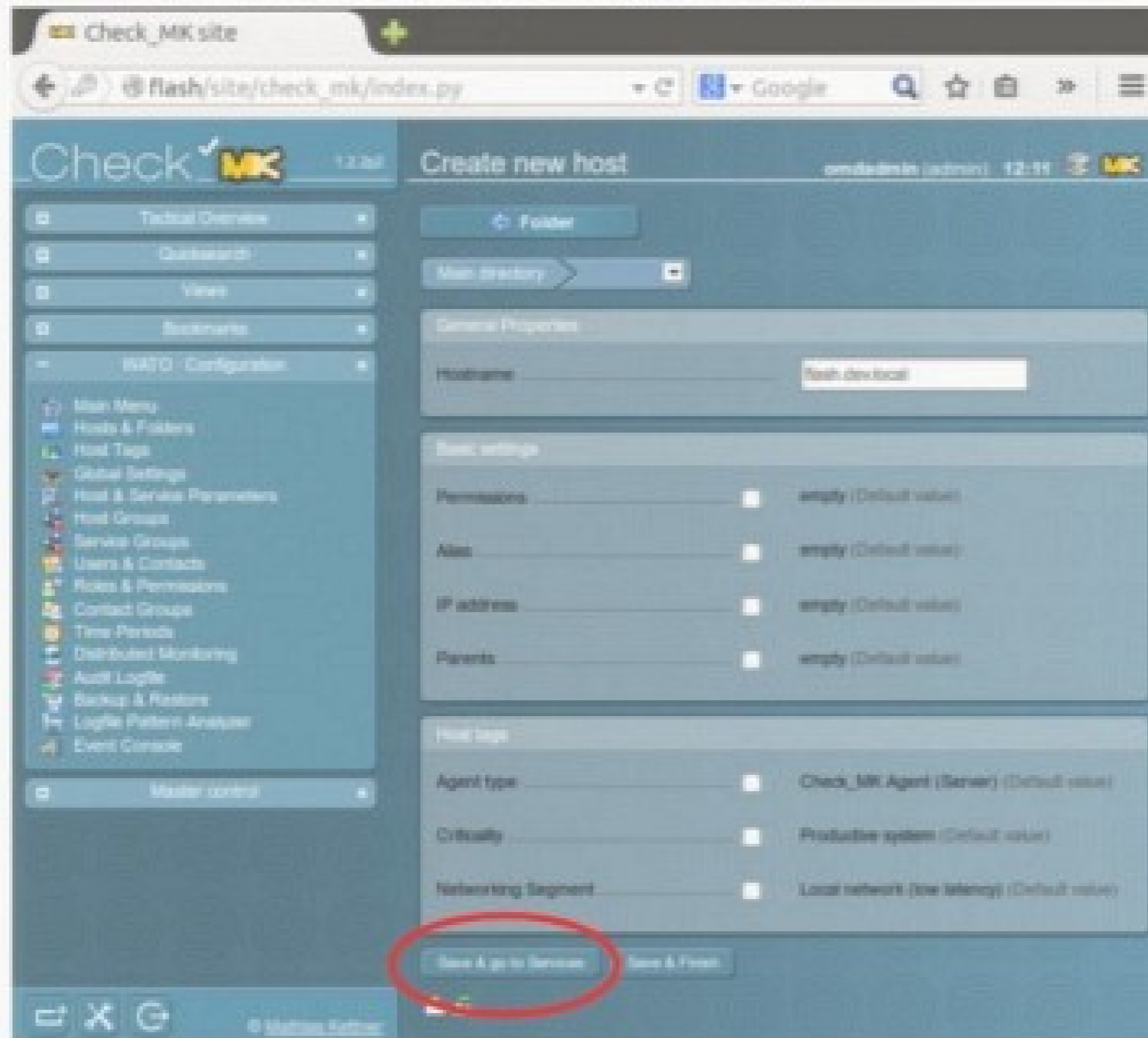
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














Check_MK – Web Administration Tool (WATO)

Services of host flash.dev.local (cached data) omdadmin (admin) 12:14 

[Status](#)
[Folder](#)
[Host properties](#)
[Full Scan](#)

[Save manual check configuration](#)

Available (missing) services

Status	Checktype	Item	Service Description	Current check		
OK	cpu.loads	None	CPU load	OK - 15min load 2.31 at 4 CPUs		
OK	cpu.threads	None	Number of threads	OK - 827 threads		
OK	df	/	fs_	OK - 23.3% used (103.12 of 442.3 GB), (levels at 80.0/90.0%), trend: 0.00B / 24 hours		
OK	df	/boot	fs_/boot	OK - 72.4% used (0.16 of 0.2 GB), (levels at 80.0/90.0%), trend: 0.00B / 24 hours		
OK	df	/boot/efi	fs_/boot/efi	OK - 1.8% used (0.00 of 0.2 GB), (levels at 80.0/90.0%), trend: 0.00B / 24 hours		
OK	diskstat	SUMMARY	Disk IO SUMMARY	OK - 0.00B/sec read, 0.00B/sec write, IOs: 0.00/sec, Latency: 0.00ms		
OK	kernel	Context Switches	Kernel Context Switches	OK - 0/s in last 1 secs		
OK	kernel	Major Page Faults	Kernel Major Page Faults	OK - 0/s in last 1 secs		
OK	kernel	Process Creations	Kernel Process Creations	OK - 0/s in last 1 secs		
OK	kernel.util	None	CPU utilization	OK - user: 48.0%, system: 1.5%, wait: 0.1%		

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Status Folder Host properties Full Scan

Save manual check configuration

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Status Folder Host properties Full Scan

Save manual check configuration

Available (missing) services

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OK	cpu.threads	None	Number of threads	OK - 827 threads		
OK	df	/	fs_/	OK - 28.5% used (103.12 of 442.3 GB), (levels at 80.0/90.0%), trend: 0.00B / 24 hours		
OK	df	/boot	fs_/boot	OK - 72.4% used (0.16 of 0.2 GB), (levels at 80.0/90.0%), trend: 0.00B / 24 hours		
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OK	kernel	Major Page Faults	Kernel Major Page Faults	OK - 0/s in last 1 secs	
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Check_MK – Web Administration Tool (WATO)

Edit rule CPU load (not utilization!) omdadmin (admin) 18:02

Alert

The CPU load of a system is the number of processes currently being in the state `running`, i.e. either they occupy a CPU or wait for one. The load `avgavg` is the averaged CPU load over the last 1, 5 or 15 minutes. The following levels will be applied on the averaged load. On Linux system the 15-minute average load is used when applying those levels. The configured levels are multiplied with the number of CPUs, so you should configure the levels based on the value you want to be warned "per CPU".

Conditions

Folder:
The rule is only applied to hosts directly in or below this folder.

Host tags:

Agent type:
Criticality:
Networking Segment:
Monitor via SNMP:
Monitor via Check_MK Agent:
The rule will only be applied to hosts fulfilling all of the host tag conditions listed here, even if they appear in the list of explicit host names.

Explicit hosts:

Specify explicit host names Negate: make rule apply for all but the above hosts

You can enter a number of explicit host names that rule should or should not apply to here. Leave this option disabled if you want the rule to apply for all hosts specified by the given tags.

Value:

Warning at a load of
Critical at a load of

Check_MK – Web Administration Tool (WATO)

Edit rule CPU load (not utilization) admin@localhost (admin) 18:02

[About](#)

The CPU load of a system is the number of processes currently being in the state (waiting, i.e. either they occupy a CPU or wait for one). The load average is the averaged CPU load over the last 1, 5 or 15 minutes. The following levels will be applied on the average load. On Linux systems the 15-minute average load is used when applying these levels. The configured levels are multiplied with the number of CPUs, so you should configure the levels based on the value you want to be warned for CPU.

Conditions

Folder:
The rule is only applied to hosts directly in or below this folder.

Host tags:

Agent type:
Criticality:
Networking Segment:
Monitor via SNMP:
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Values

Warning at a load of:
Critical at a load of:

Check_MK – Web Administration Tool (WATO)

Edit rule CPU load (not utilization?) admin@checkmk.com (admin) 18:02

About

The CPU load of a system is the number of processes currently being in the state (ppp)pp, i.e. either they occupy a CPU or wait for one. The `load_average` is the averaged CPU load over the last 1, 5 or 15 minutes. The following levels will be applied on the average load. On Linux system the 15-minute average load is used when applying those levels. The configured levels are multiplied with the number of CPUs, so you should configure the levels based on the value you want to be warned "per CPU".

Conditions

Folder:

The rule is only applied to hosts that are in this folder.

Host tags:

Agent type:	<input type="text" value="ignore"/>
Criticality:	<input type="text" value="is"/> <input type="text" value="Productive system"/>
Networking Segment:	<input type="text" value="ignore"/>
monitor via SNMP:	<input type="text" value="ignore"/>
monitor via Check_MK Agent:	<input type="text" value="is"/>

This rule will be applied to hosts fulfilling all the host tag conditions listed here, even if they appear in the list of explicit host names.

Explicit hosts:

Specify explicit host names Negative: make rule apply for all but the above hosts

You can enter a number of explicit host names that rule should or should not apply to here. Leave this option disabled if you want the rule to apply for all hosts specified by the given tags.

Values

Warning at a load of

Critical at a load of

Check_MK – Web Administration Tool (WATO)

Edit rule CPU load (not utilization)

admin@... 18:02

Alert

The CPU load of a system is the number of processes currently being in the state (ppppp), i.e. either they occupy a CPU or wait for one. The load average is the averaged CPU load over the last 1, 5 or 15 minutes. The following levels will be applied on the average load. On Linux system the 15-minute average load is used when applying threat levels. The configured levels are multiplied with the number of CPUs, so you should configure the levels based on the value you want to be warned "per CPU".

Conditions

Folder: **Main directory** Applied to hosts directly in or below this folder.

Host tags:

Agent type:	<input type="text" value="ignore"/>
Criticality:	<input type="text" value="is"/> <input type="text" value="Productive system"/>
Networking Segment:	<input type="text" value="ignore"/>
monitor via SNMP:	<input type="text" value="ignore"/>
monitor via Check_MK Agent:	<input type="text" value="is"/> <input type="text" value="set"/>

This rule will only be applied to hosts fulfilling all of the host tag conditions listed here, even if they appear in the list of explicit host names.

Explicit hosts:

Specify explicit host names **Negate:** make rule apply for all but the above hosts

You can enter a number of explicit host names that rule should or should not apply to here. Leave this option disabled if you want the rule to apply for all hosts specified by the given tags.

Value

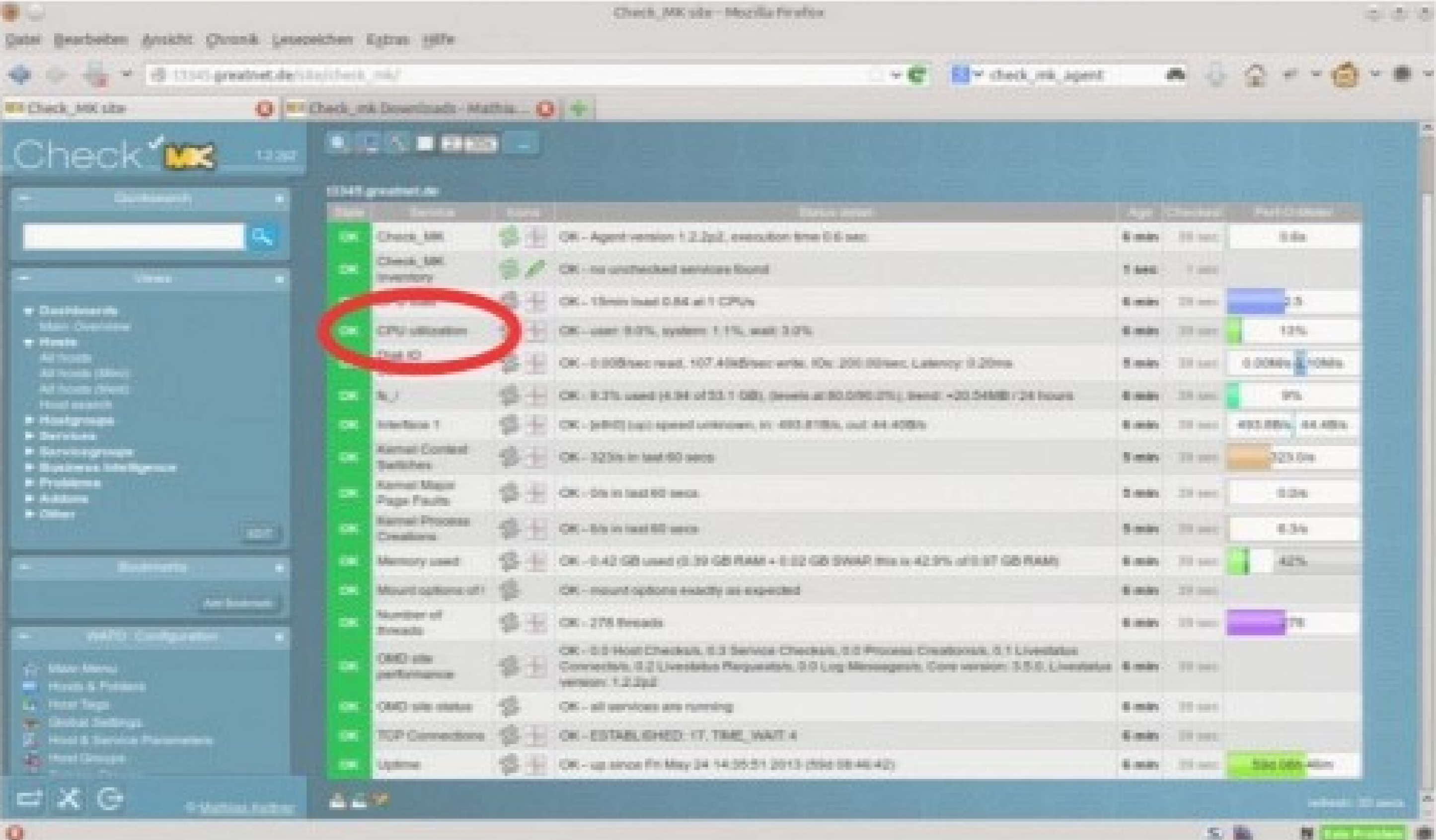
Warning at a load of:	<input type="text" value="1.0"/>
Critical at a load of:	<input type="text" value="2.0"/>

Check_MK – Multisite Service Übersicht

The screenshot shows the Check_MK web interface for the site '1345 greatnet.de'. The main content area displays a table of services, all of which are in an 'OK' state. The table includes columns for service name, status, description, type, checked time, and performance metrics.

Service	Status	Description	Type	Checked	Performance
Check_MK	OK	OK - Agent version 1.2.2p2, execution time 0.0 sec	0 min	0 sec	0.0s
Check_MK inventory	OK	OK - no untested services found	1 min	1 sec	
CPU load	OK	OK - 13sec load 0.84 at 1 CPUs	0 min	0 sec	0.8
CPU utilization	OK	OK - user 9.0%, system 1.1%, wait 3.0%	0 min	0 sec	10%
Disk IO SUBTOTAL	OK	OK - 0.00B/sec read, 107.40B/sec write, 40x: 200.00B/sec, Latency: 0.20ms	0 min	0 sec	0.00MB/s 10MB/s
fs_	OK	OK - 9.3% used (4.94 of 53.1 GB), levels at 80.090.0%, trend: +20.24MB / 24 hours	0 min	0 sec	0%
interface 1	OK	OK - (eth0) up speed unknown, in: 493.81B/s, out: 44.40B/s	0 min	0 sec	493.8B/s 44.4B/s
kernel Context Switches	OK	OK - 323s in last 60 secs	0 min	0 sec	323.0s
kernel Major Page Faults	OK	OK - 0s in last 60 secs	0 min	0 sec	0.0s
kernel Process Creations	OK	OK - 6s in last 60 secs	0 min	0 sec	0.7s
Memory used	OK	OK - 0.42 GB used (0.39 GB RAM + 0.02 GB SWAP) this is 42.9% of 0.97 GB RAM	0 min	0 sec	42%
Mount options of /	OK	OK - mount options exactly as expected	0 min	0 sec	
Number of threads	OK	OK - 278 threads	0 min	0 sec	278
OMD site performance	OK	OK - 0.0 Host Checks, 0.0 Service Checks, 0.0 Process Creations, 0.1 Livestatus Connectors, 0.2 Livestatus Requests, 0.0 Log Messages, Core version: 3.5.0, Livestatus version: 1.2.2p2	0 min	0 sec	
OMD site status	OK	OK - all services are running	0 min	0 sec	
TOP Connections	OK	OK - ESTABLISHED: 17, TIME_WAIT: 4	0 min	0 sec	
uptime	OK	OK - up since Fri May 24 14:35:01 2013 (2940844s)	0 min	0 sec	2940844s

Check_MK – Multisite Service Übersicht



The screenshot displays the Check_MK monitoring interface. The main content area shows a table of services with columns for Name, Service, Status, Description, Age, Checked, and Part of Group. The 'CPU utilization' service is circled in red.

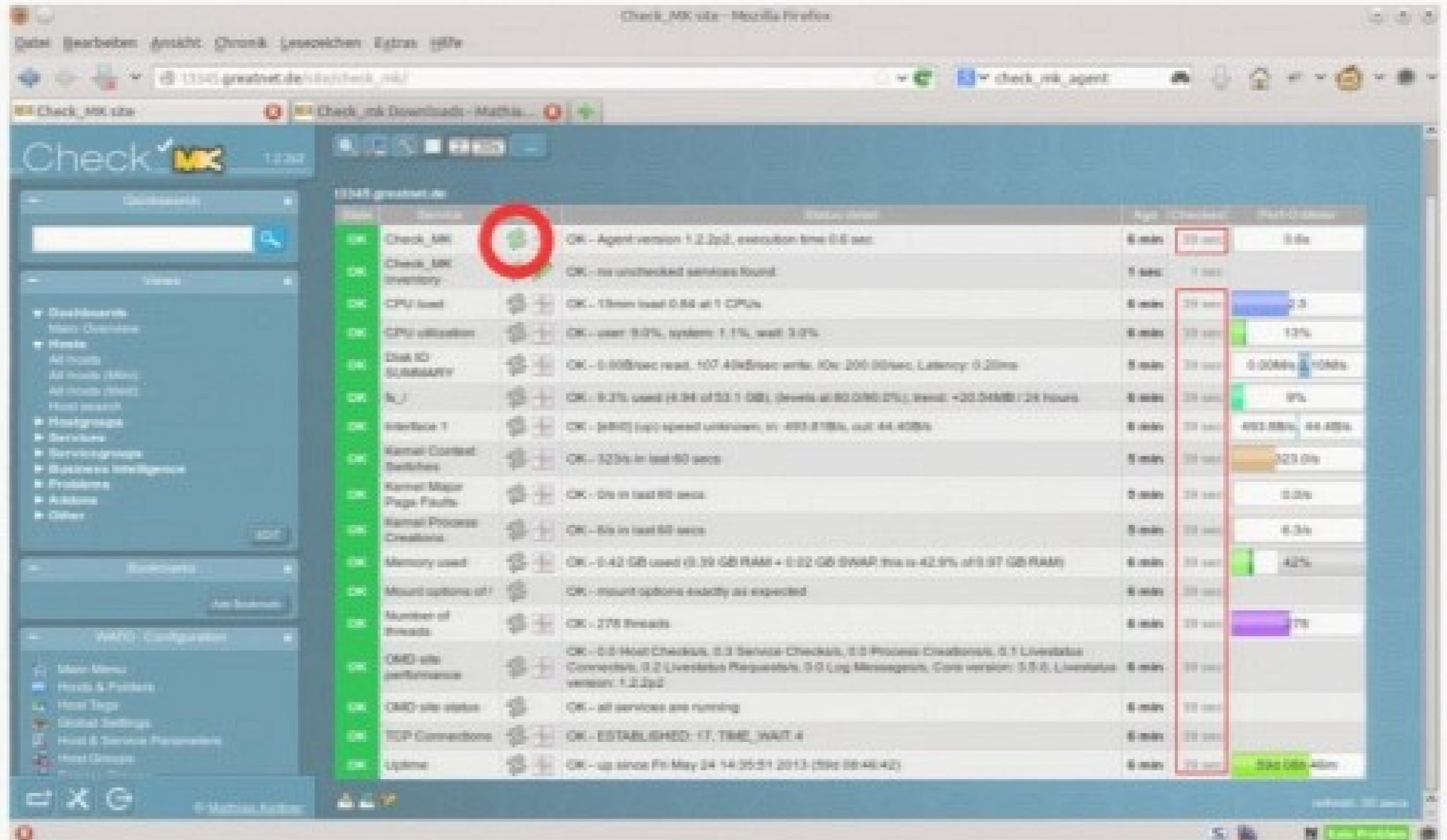
Name	Service	Status	Description	Age	Checked	Part of Group
OK	Check_MK	OK	OK - Agent version 1.2.2p2, execution time 0.0 sec	0 min	11 sec	0.0s
OK	Check_MK Inventory	OK	OK - no unchecked services found	1 min	1 sec	
OK	Load	OK	OK - 15min load 0.84 at 1 CPUs	0 min	11 sec	0.5
OK	CPU utilization	OK	OK - user 0.0%, system 1.1%, wait 3.0%	0 min	11 sec	12%
OK	Disk IO	OK	OK - 0.00B/sec read, 107.40B/sec write, I/Os: 200 B/sec, Latency: 0.20ms	0 min	11 sec	0.0000% / 100%
OK	hdd	OK	OK - 0.2% used (4.34 of 20.1 GB), (levels at 80.00% / 90%), trend: +20.04MB / 24 hours	0 min	11 sec	0%
OK	Interface 1	OK	OK - (eth0) link speed unknown, in: 493.81B/s, out: 44.40B/s	0 min	11 sec	493.81% / 44.40%
OK	Kernel Context Switches	OK	OK - 323s in last 60 secs	0 min	11 sec	323.0%
OK	Kernel Major Page Faults	OK	OK - 0s in last 60 secs	0 min	11 sec	0.0%
OK	Kernel Process Creations	OK	OK - 0s in last 60 secs	0 min	11 sec	0.0%
OK	Memory used	OK	OK - 0.42 GB used (0.39 GB RAM + 0.02 GB SWAP) this is 42.0% of 0.97 GB RAM	0 min	11 sec	42%
OK	Mount options of /	OK	OK - mount options exactly as expected	0 min	11 sec	
OK	Number of threads	OK	OK - 275 threads	0 min	11 sec	275
OK	OMD site performance	OK	OK - 0.0 Host Checks, 0.0 Service Checks, 0.0 Process Creations, 0.1 Livestatus Connectors, 0.0 Livestatus Parameters, 0.0 Log Messages, Core version: 3.5.0, Livestatus version: 1.2.2p2	0 min	11 sec	
OK	OMD site status	OK	OK - all services are running	0 min	11 sec	
OK	TOP Connections	OK	OK - ESTABLISHED: 17, TIME_WAIT: 4	0 min	11 sec	
OK	Uptime	OK	OK - up since Fri May 24 14:05:51 2013 (290 08:46:42)	0 min	11 sec	290 08:46:42

Check_MK – Multisite Service Übersicht

The screenshot displays the Check_MK monitoring interface for the host '13142.greatnet.de'. The interface includes a navigation sidebar on the left and a main table of services. The 'CPU system' row is highlighted with a red circle.

Service	Status	Details	Age	Checked	Performance
Check_MK	OK	Agent version 1.2.2p2, execution time 0.0 sec	0 min	11 sec	0.0s
Check_MK inventory	OK	OK - no unchecked services found	1 min	1 sec	
CPU load	OK	13min load 0.84 at 1 CPUs	0 min	11 sec	0.3
CPU system	OK	0.0%, system 1.1%, user 3.0%	0 min	11 sec	13%
Disk I/O SUBSYS *	OK	1.30MB/sec read, 107.40KB/sec write, I/O: 200.00sec, Latency: 0.20ms	0 min	11 sec	0.00MB/s / 10MB/s
fs_1	OK	0.1% used (4.94 of 53.1 GB), (levels at 80.00% 0%), trend: +20.54MB / 24 hours	0 min	11 sec	0%
interface 1	OK	(eth0) up; speed unknown, in: 493.81KB/s, out: 44.40KB/s	0 min	11 sec	493.81KB/s / 44.40KB/s
kernel Context Switches	OK	OK - 323s in last 60 secs	0 min	11 sec	323.0%
kernel Major Page Faults	OK	OK - 0s in last 60 secs	0 min	11 sec	0.0%
kernel Process Creations	OK	OK - 0s in last 60 secs	0 min	11 sec	0.0%
memory used	OK	OK - 0.42 GB used (0.39 GB RAM + 0.02 GB SWAP) this is 42.0% of 0.97 GB RAM	0 min	11 sec	42%
Mount options of 1	OK	OK - mount options exactly as expected	0 min	11 sec	
Number of threads	OK	OK - 278 threads	0 min	11 sec	278
OMD site performance	OK	OK - 0.0 Host Checks, 0.0 Service Checks, 0.0 Process Creations, 0.1 Liveness Connectors, 0.2 Liveness Parameters, 0.0 Log Messages, Core version: 3.5.0, Livestatus version: 1.2.2p2	0 min	11 sec	
OMD site status	OK	OK - all services are running	0 min	11 sec	
TCP Connections	OK	OK - ESTABLISHED: 17, TIME_WAIT: 4	0 min	11 sec	
Uptime	OK	OK - up since Fri May 24 14:35:51 2013 (596 08:46:42)	0 min	11 sec	596 08:46:42

Check_MK – Multisite Service Übersicht



Check_MK – Multisite Service Übersicht

The screenshot shows the Check_MK monitoring interface for the host '1342.greatnet.de'. The interface includes a sidebar with navigation options like 'Dashboards', 'Views', 'Bookmarks', and 'WATO Configuration'. The main area displays a table of services with columns for Name, Status, Description, Age, Checked, and Perf. Options.

Name	Status	Description	Age	Checked	Perf. Options
Check_MK	OK	OK - Agent version 1.2.2p2, execution time 0.0 sec	0 min	0 sec	0.0s
Check_MK inventory	OK	OK - no unchecked services found	1 min	1 sec	
CPU load	OK	OK - 1.00% load (0.04 at 1 CPUs)	0 min	0 sec	0.0
CPU system	OK	OK - user 0.0%, system 1.1%, wait 3.0%	0 min	0 sec	12%
Disk IO SUBSYS	OK	OK - 1.00kB/sec read, 107.40kB/sec write, 100.200kB/sec Latency: 0.20ms	0 min	0 sec	0.0000s / 1000s
fs_U	OK	OK - 0.3% used (4.94 of 15.1 GB), (levels at 80.0000%), trend: +20.54MB / 24 hours	0 min	0 sec	0%
Interface 1	OK	OK - [eth0] up; speed unknown, in: 493.818s, out: 44.408s	0 min	0 sec	493.818s / 44.408s
Kernel Context Switches	OK	OK - 323s in last 60 secs	0 min	0 sec	323.0s
Kernel Major Page Faults	OK	OK - 0s in last 60 secs	0 min	0 sec	0.0s
Kernel Process Creations	OK	OK - 0s in last 60 secs	0 min	0 sec	0.0s
Memory used	OK	OK - 0.42 GB used (0.39 GB RAM + 0.02 GB SWAP) this is 42.0% of 0.97 GB RAM	0 min	0 sec	42%
Mount options of 1	OK	OK - mount options exactly as expected	0 min	0 sec	
Number of threads	OK	OK - 278 threads	0 min	0 sec	278
OMD site performance	OK	OK - 0.0 Host Checks, 0.0 Service Checks, 0.0 Process Creations, 0.1 Livestatus Connectors, 0.2 Livestatus Requests, 0.0 Log Messages, Core version: 5.5.0, Livestatus version: 1.2.2p2	0 min	0 sec	
OMD site status	OK	OK - all services are running	0 min	0 sec	
TOP Connections	OK	OK - ESTABLISHED - 17, TIME_WAIT 4	0 min	0 sec	
Uptime	OK	OK - up since Fri May 24 14:25:01 2013 (290 08:46:42)	0 min	0 sec	290 08:46:42

Check_MK – Multisite Service Übersicht

The screenshot shows the Check_MK monitoring interface. The main table lists various system metrics and services. The 'CPU utilization' row is highlighted with a red circle. The table columns include 'Status', 'Name', 'Icon', 'Description', 'Age', 'Checked', and 'Performance'.

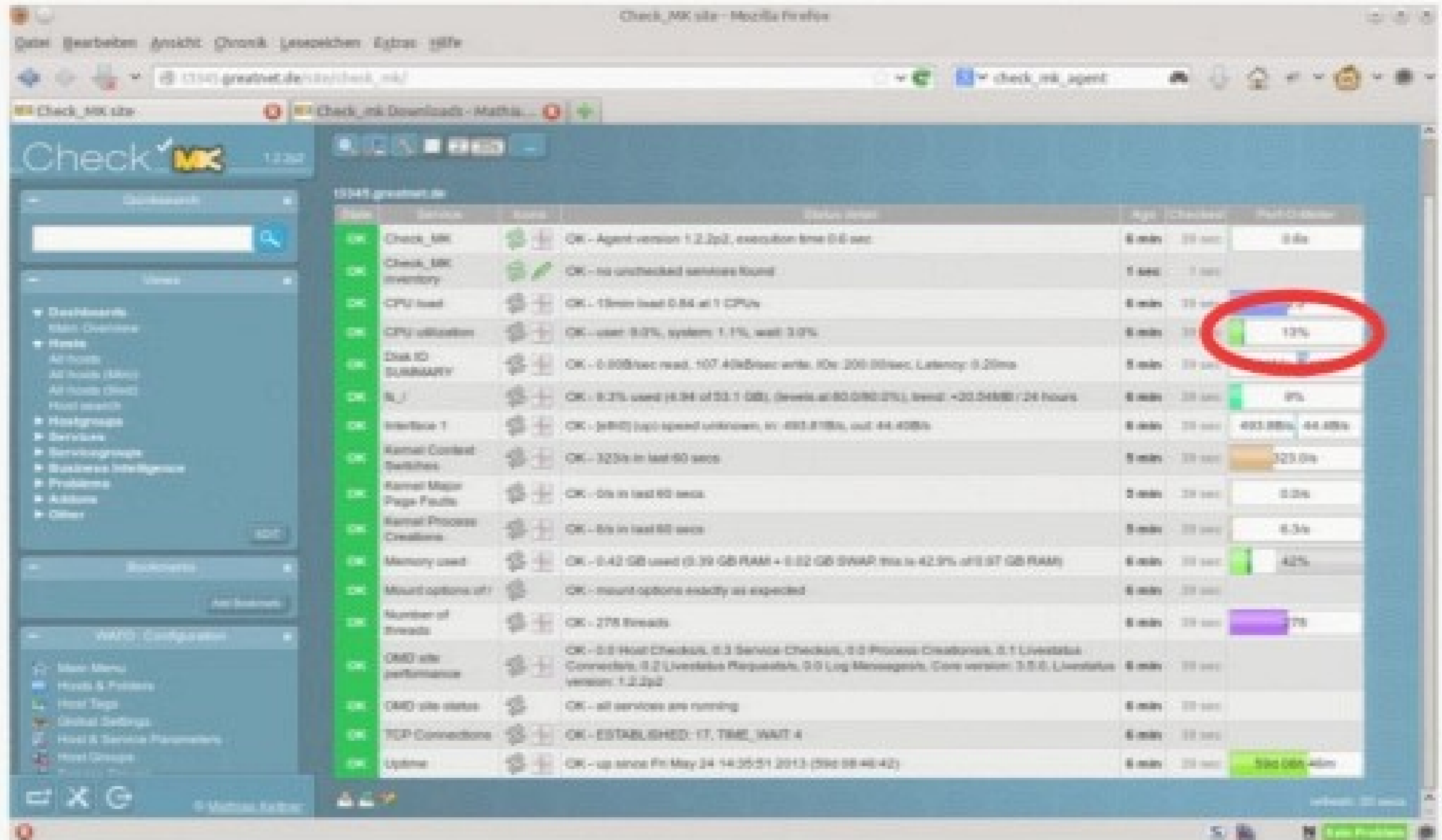
Status	Name	Icon	Description	Age	Checked	Performance
OK	Check_MK	🌿	OK - Agent version 1.2.2p2, execution time 0.0 sec	0 min	10 min	0.0s
OK	Check_MK inventory	🌿	OK - no unchecked services found	1 min	1 min	
OK	CPU load	🌿	OK - 13.1% used (0.34 of 0.25) (levels at 80.0/90.0%)	0 min	10 min	13.1%
OK	CPU utilization	🌿	OK - user 9.0%, system 1.1%, wait 3.0%	0 min	10 min	13%
OK	Disk IO SUMMARY	🌿	OK - 1.02 MB/s read, 0.17 MB/s write, Latency: 0.20ms	0 min	10 min	0.000MB/s read, 0.000MB/s write
OK	fs_	🌿	OK - 9.3% used (4.34 of 46.1 GB), (levels at 80.0/90.0%), trend: +20.04MB / 24 hours	0 min	10 min	9%
OK	interface 1	🌿	OK - (eth0) rx/tx speed unknown, in: 400.818s, out: 44.408s	0 min	10 min	400.818s, 44.408s
OK	kernel Context Switches	🌿	OK - 325s in last 60 secs	0 min	10 min	325.0%
OK	kernel Major Page Faults	🌿	OK - 0s in last 60 secs	0 min	10 min	0.0%
OK	kernel Process Creations	🌿	OK - 0s in last 60 secs	0 min	10 min	0.0%
OK	Memory used	🌿	OK - 0.42 GB used (0.39 GB RAM + 0.02 GB SWAP) free is 42.0% (0.97 GB RAM)	0 min	10 min	42%
OK	Mount options of /	🌿	OK - mount options exactly as expected	0 min	10 min	
OK	Number of threads	🌿	OK - 275 threads	0 min	10 min	275
OK	OMD site performance	🌿	OK - 0.0 Host Checks, 0.0 Service Checks, 0.0 Process Creations, 0.1 Liveness Checks, 0.0 Liveness Parameters, 0.0 Log Messages, Core version: 3.5.0, Liveness version: 1.2.2p2	0 min	10 min	
OK	OMD site status	🌿	OK - all services are running	0 min	10 min	
OK	TCP Connections	🌿	OK - ESTABLISHED: 17, TIME_WAIT: 4	0 min	10 min	
OK	Uptime	🌿	OK - up since Fri May 24 14:25:01 2013 (292 08:48:42)	0 min	10 min	292 08:48:42

Check_MK – Multisite Service Übersicht

The screenshot shows the Check_MK monitoring interface. The main table displays the following data:

Service	Status	Message	Age	Change	Period
Check_MK	OK	OK - Agent version 1.2.2p2, execution time 0.0 sec	0 min	10 min	0.0s
Check_MK inventory	OK	OK - no unchecked services found	1 min	1 min	
CPU load	OK	OK - 15min load 0.84 at 1 CPUs	0 min	10 min	0.84
CPU utilization	OK	OK - user 9.0%, system 1.1%, wait 3.0%	0 min	10 min	12%
Disk IO summary	OK	OK - 0.00B/sec read, 107.40kB/sec write, I/Os: 200 B/sec, Latency: 0.20ms	0 min	10 min	0.0000s / 100%
fs_	OK	OK - 9.3% used (4.34 of 46.7 GB), (beats at 80.0000%), trend: +20.04MB / 24 hours	0 min	10 min	9%
interface_1	OK	OK - p4000 upd speed unknown, in: 493.81B/s, out: 44.40B/s	0 min	10 min	493.81B/s / 44.40B/s
kernel Context Switches	OK	OK - 323s in last 60 secs	0 min	10 min	323.0%
kernel Major Page Faults	OK	OK - 0s in last 60 secs	0 min	10 min	0.0%
kernel Process Creations	OK	OK - 6s in last 60 secs	0 min	10 min	6.3%
Memory used	OK	OK - 0.42 GB used (0.39 GB RAM + 0.02 GB SWAP) this is 42.0% of 0.97 GB RAM	0 min	10 min	42%
Mount options of /	OK	OK - mount options exactly as expected	0 min	10 min	
Number of threads	OK	OK - 275 threads	0 min	10 min	275
OMD site performance	OK	OK - 0.0 Host Checks, 0.0 Service Checks, 0.0 Process Creations, 0.1 Liveness Connectors, 0.2 Liveness Requests, 0.0 Log Messages, Core version: 3.5.0, Liveness version: 1.2.2p2	0 min	10 min	
OMD site status	OK	OK - all services are running	0 min	10 min	
TCP Connections	OK	OK - ESTABLISHED: 17, TIME_WAIT: 4	0 min	10 min	
Uptime	OK	OK - up since Fri May 24 14:05:01 2013 (299 0846:42)	0 min	10 min	299 0846:42s

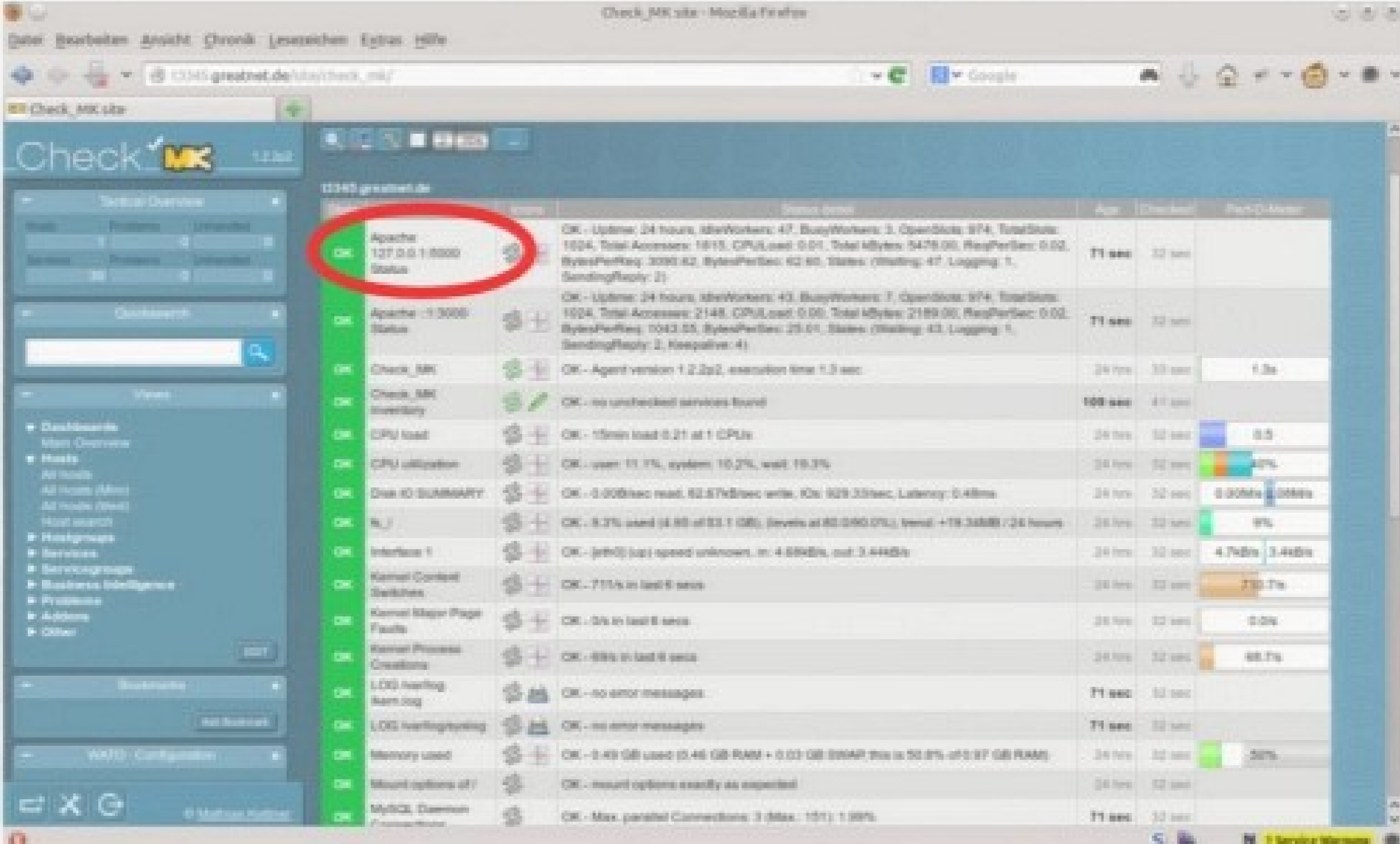
Check_MK – Multisite Service Übersicht



Check_MK – Multisite Service Übersicht

Name	Service	Status	Details	Age	Checked	Performance
OK	Apache	OK	UpTime: 24 hours, IdleWorkers: 47, BusyWorkers: 3, OpenSlots: 974, TotalSlots: 1024, Total Accesses: 1815, CPUload: 0.01, TotalMBytes: 5478.00, ReqPerSec: 0.02, BytesPerReq: 3090.62, BytesPerSec: 62.60, States: (Waiting: 47, Logging: 1, SendingReply: 2)	71 sec	32 sec	
OK	Apache	OK	UpTime: 24 hours, IdleWorkers: 43, BusyWorkers: 7, OpenSlots: 974, TotalSlots: 1024, Total Accesses: 2148, CPUload: 0.03, TotalMBytes: 2189.00, ReqPerSec: 0.02, BytesPerReq: 1043.55, BytesPerSec: 20.91, States: (Waiting: 43, Logging: 1, SendingReply: 2, Response: 4)	71 sec	32 sec	
OK	Check_MK	OK	Agent version 1.2.2p2, execution time 1.0 sec	24 hrs	32 sec	1.2s
OK	Check_MK Inventory	OK	no unlinked services found	109 sec	41 sec	
OK	CPU load	OK	15min load 0.21 at 1 CPUs	24 hrs	32 sec	0.0
OK	CPU utilization	OK	user: 11.1%, system: 10.2%, wait: 19.3%	24 hrs	32 sec	30%
OK	Disk IO SUMMARY	OK	0.000B/sec read, 82.674B/sec write, IO: 829.33sec, Latency: 0.48ms	24 hrs	32 sec	0.000MB/s 82.674MB/s
OK	fs_1	OK	9.3% used (4.89 of 53.1 GB), levels at 80.090 GB, send +19.346MB / 24 hours	24 hrs	32 sec	9%
OK	Interface 1	OK	(jumbo) out speed unknown, in: 4.554B/s, out: 3.448B/s	24 hrs	32 sec	4.745B/s 3.448B/s
OK	Kernel Context Switches	OK	711% in last 8 secs	24 hrs	32 sec	711.7%
OK	Kernel Major Page Faults	OK	0% in last 8 secs	24 hrs	32 sec	0.0%
OK	Kernel Process Creation	OK	68% in last 8 secs	24 hrs	32 sec	68.7%
OK	LOG handling kern.log	OK	no error messages	71 sec	32 sec	
OK	LOG handling syslog	OK	no error messages	71 sec	32 sec	
OK	Memory used	OK	0.49 GB used (0.49 GB RAM + 0.00 GB SWAP this is 50.0% of 0.97 GB RAM)	24 hrs	32 sec	50%
OK	Mount options udf	OK	mount options exactly as expected	24 hrs	32 sec	
OK	MySQL Daemon	OK	Max. parallel Connections: 3 (Max.: 101): 1.00%	71 sec	32 sec	

Check_MK – Multisite Service Übersicht



The screenshot displays the Check_MK Multisite Service Overview for the host '0345.greatnet.de'. The interface is divided into a sidebar on the left and a main table on the right. The sidebar contains navigation options such as 'Dashboards', 'Hosts', 'Views', and 'WATO-Configuration'. The main table lists various services and their status, with the 'Apache' service highlighted by a red circle.

Service	Status	Agent Version	Execution Time	App	Checked	PerfD-Meter
Apache 127.0.0.1:8000 Status	OK	OK - Uptime: 24 hours, IdleWorkers: 47, BusyWorkers: 2, OpenSlots: 974, TotalSlots: 1024, TotalAccesses: 1815, CPU_Load: 0.01, TotalMBytes: 5475.00, ReqPerSec: 0.02, BytesPerReq: 2092.82, BytesPerSec: 42.60, States (Waiting: 47, Logging: 1, SendingReply: 2)	71 sec	32 sec		
Apache -1:3000 Status	OK	OK - Uptime: 24 hours, IdleWorkers: 43, BusyWorkers: 7, OpenSlots: 974, TotalSlots: 1024, TotalAccesses: 2148, CPU_Load: 0.00, TotalMBytes: 2189.00, ReqPerSec: 0.02, BytesPerReq: 1043.00, BytesPerSec: 20.86, States (Waiting: 43, Logging: 1, SendingReply: 2, Keepalive: 4)	71 sec	32 sec		
Check_MK	OK	OK - Agent version 1.2.2a2, execution time 1.3 sec	24 hrs	30 sec	1.3s	
Check_MK Inventory	OK	OK - no unprotected services found	100 sec	41 sec		
CPU load	OK	OK - 10min load 0.21 at 1 CPUs	24 hrs	32 sec	0.2	
CPU utilization	OK	OK - user 11.1%, system 10.2%, wait 19.3%	24 hrs	32 sec	20%	
Disk IO SUMMARY	OK	OK - 0.00B/sec read, 82.87kB/sec write, IOs: 829.33/sec, Latency: 0.48ms	24 hrs	32 sec	0.00MB/s 0.00MB/s	
du	OK	OK - 8.2% used (4.85 of 59.1 GB), (levels at 80.040.0%), trend: +19.34MB / 24 hours	24 hrs	32 sec	8%	
Interface 1	OK	OK - [eth0] rx/tx speed unknown, in: 4.69kB/s, out: 3.44kB/s	24 hrs	32 sec	4.7kB/s 3.4kB/s	
Kernel Context Switches	OK	OK - 71% in last 8 secs	24 hrs	32 sec	70.7%	
Kernel Major Page Faults	OK	OK - 0% in last 8 secs	24 hrs	32 sec	0.0%	
Kernel Process Creation	OK	OK - 66% in last 8 secs	24 hrs	32 sec	66.7%	
LOG handling /var/log	OK	OK - no error messages	71 sec	32 sec		
LOG handling /var/log	OK	OK - no error messages	71 sec	32 sec		
Memory used	OK	OK - 0.49 GB used (0.46 GB RAM + 0.03 GB SWAP, this is 50.8% of 0.97 GB RAM)	24 hrs	32 sec	50%	
Mount options of /	OK	OK - mount options exactly as expected	24 hrs	32 sec		
MySQL Daemon Processors	OK	OK - Max. parallel Connections: 3 (Max.: 101): 1.00%	71 sec	32 sec		

Check_MK – Multisite Service Übersicht

The screenshot displays the Check_MK Multisite Service Overview. The interface includes a sidebar with navigation options like 'Dashboard', 'Hosts', and 'Services'. The main area shows a table of services with columns for Name, Status, Description, Age, Duration, and Performance. A red circle highlights the 'LDG handling kern.log' service, which is marked as 'OK' and has 'no error messages'.

Name	Status	Description	Age	Duration	Performance
Apache 127.0.0.1:8000 Status	OK	OK - Uptime: 24 hours, IdleWorkers: 47, BusyWorkers: 2, OpenSockets: 974, TotalSlots: 1024, Total Accesses: 1815, CPU_Load: 0.01, Total MBytes: 5475.00, ReqPerSec: 0.02, BytesPerReq: 2090.82, BytesPerSec: 62.60, States (Waiting: 47, Logging: 1, SendingReply: 2)	71 sec	32 sec	
Apache 1:3000 Status	OK	OK - Uptime: 24 hours, IdleWorkers: 40, BusyWorkers: 7, OpenSockets: 974, TotalSlots: 1024, Total Accesses: 2148, CPU_Load: 0.00, Total MBytes: 2189.00, ReqPerSec: 0.02, BytesPerReq: 1043.25, BytesPerSec: 25.01, States (Waiting: 43, Logging: 1, SendingReply: 2, Resolving: 4)	71 sec	32 sec	
Check_MK	OK	OK - Agent version 1.2.2p2, execution time 1.3 sec	24 hrs	32 sec	1.3s
Check_MK Inventory	OK	OK - no untrusted services found	100 sec	41 sec	
CPU load	OK	OK - 10min load 0.21 at 1 CPUs	24 hrs	32 sec	0.2
CPU utilization	OK	OK - user: 11.7%, system: 10.2%, idle: 18.2%	24 hrs	32 sec	100%
Disk IO SUMMARY	OK	OK - 0.000B/sec read, 62.876B/sec write, I/Os: 629.33/sec, Latency: 0.48ms	24 hrs	32 sec	0.000B/s 62.876B/s
hdd	OK	OK - 8.2% used (4.48 of 53.1 GB), (levels at 80.040 GB), trend: +19.368B / 24 hours	24 hrs	32 sec	8%
Interface 1	OK	OK - [eth0] up speed unknown, in: 4.664B/s, out: 3.448B/s	24 hrs	32 sec	4.76B/s 3.448B/s
Kernel Context Switches	OK	OK - 771/s in last 8 secs	24 hrs	32 sec	770.7/s
Kernel Major Page Faults	OK	OK - 0/s in last 8 secs	24 hrs	32 sec	0.0/s
Kernel Minor Page Faults	OK	OK - 687/s in last 8 secs	24 hrs	32 sec	68.7/s
LDG handling kern.log	OK	OK - no error messages	71 sec	32 sec	
LDG handling kern.log	OK	OK - no error messages	71 sec	32 sec	
Memory used	OK	OK - 0.49 GB used (0.46 GB RAM + 0.02 GB SWAP, this is 50.8% of 0.97 GB RAM)	24 hrs	32 sec	50%
Mount options of /	OK	OK - mount options exactly as expected	24 hrs	32 sec	
MySQL Daemon Connections	OK	OK - Max. parallel Connections: 3 (Max.: 101) 1.00%	71 sec	32 sec	

Check_MK – Multisite PNP4Nagios Integration

Check_MK 1.2.3a2

Tactical Overview

Hosts: 1 | Problems: 0 | Unhandled: 0

Services: 20 | Problems: 0 | Unhandled: 0

Quicksearch

Views

- Dashboards
 - Main Overview
- Hosts
- Hostgroups
- Services
- Servicegroups
- Business Intelligence
- Problems
- Actions
 - Search Graphs
- Other

Bookmarks

WATO Configuration

- Main Menu
- Hosts & Parsers
- Host Tags
- Global Settings
- Host & Service Parameters
- Host Groups
- Service Groups
- Users & Contacts
- Roles & Permissions

Service details t3345.greatnet.de -> CPU load

Host: t3345.greatnet.de Service: CPU load

4 Hours 14.04.14 14:58 - 14.04.14 18:58

Data source: load1

CPU Load for t3345.greatnet.de / CPU_load

Load average 1 min	5.25 last	0.24 avg	5.25 max
Load average 15 min	2.05 last	0.15 avg	2.05 max

Host: t3345.greatnet.de Service: CPU load

25 Hours 13.04.14 17:58 - 14.04.14 18:58

Data source: load1

CPU Load for t3345.greatnet.de / CPU_load

Load average 1 min	4.37 last	0.33 avg	4.37 max
Load average 15 min	1.75 last	0.15 avg	1.75 max

Host: t3345.greatnet.de Service: CPU load

One Week 07.04.14 11:58 - 14.04.14 18:58

Search

Actions

My basket

Basket is empty

Multisite links

Host: t3345.greatnet.de
Service: CPUload

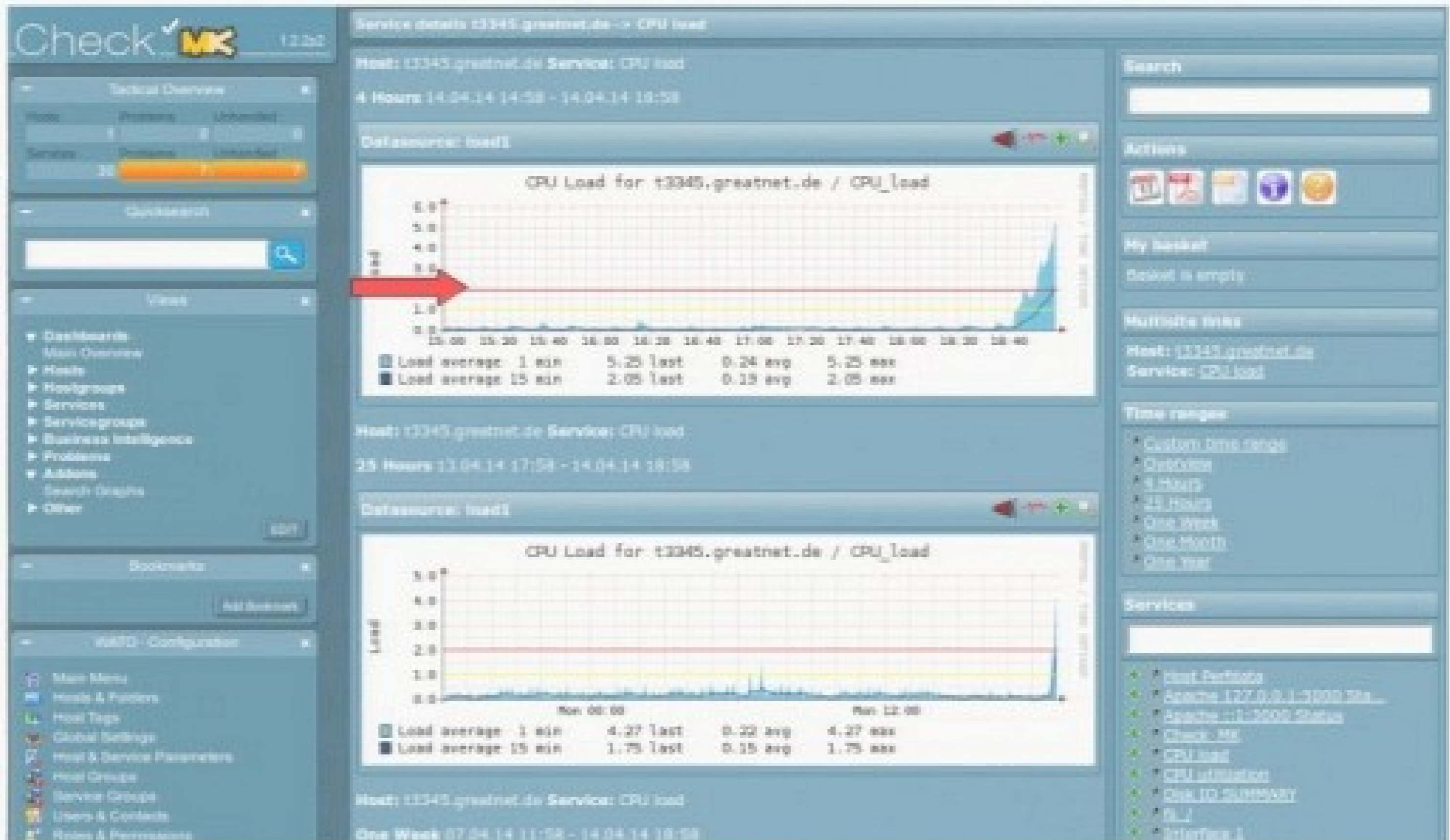
Time ranges

- Custom time range
- Default
- 4 hours
- 15 hours
- One week
- One month
- One year

Services

- host Perfdata
- Apache 127.0.0.1-3000 Sta...
- Apache 127.0.0.1-3000 Status
- Check_MK
- CPUload
- CPU utilization
- One_ID_SUM5601
- SQL
- Interface_1

Check_MK – Multisite PNP4Nagios Integration



Check_MK 1.2.52

Tactical Overview

Hosts: 1 (100%) | 0 (0%) | 0 (0%)

Services: 20 (100%) | 0 (0%) | 0 (0%)

Quicksearch

Views

- Dashboards
- Main Overview
- Hosts
- Hostgroups
- Services
- Servicegroups
- Business Intelligence
- Problems
- Actions
- Search Graphs
- Other

Bookmarks

WATO-Configuration

- Main Menu
- Hosts & Folders
- Host Tags
- Global Settings
- Host & Service Parameters
- Host Groups
- Service Groups
- Users & Contacts
- Roles & Permissions

Service details: t3345.greatnet.de -> CPU load

Host: t3345.greatnet.de Service: CPU load

4 Hours: 14.04.14 14:58 - 14.04.14 18:58

Defasource: load3

CPU Load for t3345.greatnet.de / CPU_load

Y-axis: Load (0.0 to 5.0)

X-axis: 15:00, 15:30, 16:00, 16:30, 17:00, 17:30, 18:00, 18:30, 18:45

Legend:

- Load average 1 min: 5.25 last, 0.24 avg, 5.25 max
- Load average 15 min: 2.05 last, 0.15 avg, 2.05 max

Host: t3345.greatnet.de Service: CPU load

25 Hours: 13.04.14 17:58 - 14.04.14 18:58

Defasource: load3

CPU Load for t3345.greatnet.de / CPU_load

Y-axis: Load (0.0 to 5.0)

X-axis: Mon 08:00, Mon 12:00

Legend:

- Load average 1 min: 4.37 last, 0.33 avg, 4.37 max
- Load average 15 min: 1.75 last, 0.15 avg, 1.75 max

Host: t3345.greatnet.de Service: CPU load

One Week: 07.04.14 11:58 - 14.04.14 18:58

Search

Actions

My basket

Basket is empty

Multisite links

Host: t3345.greatnet.de
Service: CPU load

Time ranges

- Custom time range
- Overline
- 5 hours
- 25 hours
- One week
- One month
- One year

Services

- Load Perfdata
- Apache 127.0.0.1-3000 Sta...
- Apache 127.0.0.1-3000 Status
- Check_MK
- CPU load
- CPU utilization
- One-IO-SUMMARY
- SQL
- Services 1

Check_MK – Multisite PNP4Nagios Integration

The screenshot displays the Check_MK web interface. On the left is a sidebar with navigation menus: 'Service Overview', 'Quicksearch', 'Views', 'Dashboards', 'Bookmarks', and 'WATO - Configuration'. The main area shows 'Service details' for 't3345.greatnet.de -> CPU load'. It features two graphs of CPU load over time, each with a table of statistics for 1 and 15 minute averages. The right sidebar contains a search bar, 'Actions', 'My basket', 'Multisite links', 'Time ranges', and a 'Services' list. A red arrow points to 'CPU load' in the services list.

Service details: t3345.greatnet.de -> CPU load

Host: t3345.greatnet.de Service: CPU load
4 Hours: 14.04.14 14:58 - 14.04.14 18:58

Defasource: host3

CPU Load for t3345.greatnet.de / CPU_load

Load average 1 min	5.25	1act	0.24	avg	5.25	max
Load average 15 min	2.05	1act	0.15	avg	2.05	max

Host: t3345.greatnet.de Service: CPU load
25 Hours: 13.04.14 17:58 - 14.04.14 18:58

Defasource: host3

CPU Load for t3345.greatnet.de / CPU_load

Load average 1 min	4.37	1act	0.23	avg	4.37	max
Load average 15 min	1.75	1act	0.15	avg	1.75	max

Host: t3345.greatnet.de Service: CPU load
One Week: 07.04.14 11:58 - 14.04.14 18:58

Services

- Host Perfdata
- Apache 127.0.0.1:8000 Sta...
- Apache ...:8000 Status
- Check_MK
- CPU load
- CPU utilization
- DBA_ID_SUMMARY
- PL1
- Interface 1

Check_MK – Multisite PNP4Nagios Integration

Service details t3345.greatnet.de -> CPU load

Host: t3345.greatnet.de Service: CPU load
4 Hours 14.04.14 14:58 - 14.04.14 19:58

Defasource: host3

CPU Load for: t3345.greatnet.de / CPU_load

Load average 1 min	5.25 last	0.24 avg	5.25 max
Load average 15 min	2.05 last	0.15 avg	2.05 max

Host: t3345.greatnet.de Service: CPU load
25 Hours 13.04.14 17:58 - 14.04.14 19:58

Defasource: host3

CPU Load for: t3345.greatnet.de / CPU_load

Load average 1 min	4.37 last	0.33 avg	4.37 max
Load average 15 min	1.75 last	0.15 avg	1.75 max

Host: t3345.greatnet.de Service: CPU load
One Week 07.04.14 11:58 - 14.04.14 19:58

Search

Actions

My basket
Basket is empty

Multisite links
Host: t3345.greatnet.de
Service: CPU load

Time ranges

- Custom time range
- Default
- 1 hour
- 25 hours
- One week
- One month
- One year

Services

- host Perfdata
- Apache 127.0.0.1:8080 Status
- Apache 127.0.0.1:8080 Status
- Check_MK
- CPU load
- CPU utilization
- One-IP-SUMMARY
- PL1
- Solaris_1

Check_MK – Multisite PNP4Nagios Integration

The screenshot displays the Check_MK web interface for monitoring the CPU load of host `t3345.greatnet.de`. The interface is divided into several sections:

- Left Sidebar:** Contains navigation menus for 'Tactical Overview', 'Quicksearch', 'Views' (with sub-items like Dashboards, Hosts, Services, etc.), and 'Bookmarks'.
- Main Content Area:** Shows two RRD graphs for 'CPU Load for t3345.greatnet.de / CPU_load'.
 - The top graph shows data for the last 4 hours (14.04.14 14:58 - 14.04.14 18:58). The legend indicates:

Load average 1 min	5.25 last	0.24 avg	5.25 max
Load average 15 min	2.05 last	0.15 avg	2.05 max
 - The bottom graph shows data for the last 25 hours (14.04.14 17:58 - 14.04.14 18:58). The legend indicates:

Load average 1 min	4.37 last	0.23 avg	4.37 max
Load average 15 min	1.75 last	0.15 avg	1.75 max
- Right Sidebar:** Includes a search bar, 'Actions', 'My basket', 'Multisite links', 'Time ranges' (with a red circle around the dropdown menu), and a list of services.

Open Monitoring Distribution & Check_MK

Nagios Historie

OMD - Distribution für Monitoring Tools

Check_MK – GUIs

Check_MK – Agent

Check_MK – Checks

Customizing Check_MK

Check_MK - Agent

- Basis Monitoringskript (Memory, CPU, Filesystem, ...)
 - verfügbar für Linux, OSX, Win, Solaris, HP-UX, vSphere ...

Check_MK - Agent

```

/usr/bin/check_mk_agent
<<<check_mk>>>
Version: 1.2.3i1
AgentOS: linux
PluginsDirectory: /usr/lib/check_mk_agent/plugins
LocalDirectory: /usr/lib/check_mk_agent/local
AgentDirectory: /etc/check_mk
OnlyFrom:
<<<df>>>
/dev/mapper/ubuntu-vg-root  ext4      463771440 77869236 362320920      18% /
udev                      devtmpfs  8110116      4  8110112      1% /dev
/dev/sda2                  ext2      234153      115128  106533      52% /boot
/dev/sda1                  vfat      191551      3360  188192      2% /boot/efi
<<<nfsmounts>>>
<<<mounts>>>
/dev/mapper/ubuntu--vg-root / ext4 rw,relatime,errors=remount-ro,data=ordered 0 0
/dev/sda2 /boot ext2 rw,relatime,errors=continue 0 0
/dev/sda1 /boot/efi vfat
rw,relatime,mask=0022,dmask=0022,codepage=437,ioccharset=iso8859-
1,shortname=mixed,errors=remount-ro 0 0
<<<ps>>>
(root,23236,3208,0.0) /sbin/init
(root,0,0,0.0) [kthreadd]
...

```

Check_MK - Agent

```
/usr/bin/check_mk_agent
<<<check_mk>>>
Version: 1.2.311
AgentOS: linux
PluginsDirectory: /usr/lib/check_mk_agent/plugins
LocalDirectory: /usr/lib/check_mk_agent/local
AgentDirectory: /etc/check_mk
OnlyFrom:
<<<df>>>
/dev/mapper/ubuntu-vg-root  ext4      463771440 77869236 362320920      18% /
udev                      devtmpfs  8110116   4      8110112        1% /dev
/dev/sda2                  ext2      234153   115128  106533         52% /boot
/dev/sda1                  vfat     191551   3360   188192         2% /boot/efi
<<<nfsmounts>>>
<<<mounts>>>
/dev/mapper/ubuntu--vg-root / ext4 rw,relatime,errors=remount-ro,data=ordered 0 0
/dev/sda2 /boot ext2 rw,relatime,errors=continue 0 0
/dev/sda1 /boot/efi vfat
rw,relatime,fmask=0022,dmask=0022,codepage=437,ioccharset=iso8859-
1,shortname=mixed,errors=remount-ro 0 0
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(root,23236,3208,0.0) /sbin/init
(root,0,0,0.0) [kthreadd]
...
```

Check_MK - Agent

```
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PluginsDirectory: /usr/lib/check_mk_agent/plugins
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/dev/mapper/ubuntu-vg-root ext4      463771440 77869236 362320920      18% /
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/dev/sda2                ext2        234153      115128      106533      52% /boot
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/dev/mapper/ubuntu--vg-root / ext4 rw,relatime,errors=remount-ro,data=ordered 0 0
/dev/sda2 /boot ext2 rw,relatime,errors=continue 0 0
/dev/sda1 /boot/efi vfat
rw,relatime,mask=0022,dmask=0022,codepage=437,ioccharset=iso8859-
1,shortname=mixed,errors=remount-ro 0 0
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udev                    devtmpfs    8110116      4    8110112      1% /dev
/dev/sda2                ext2        234153      115128    106533      52% /boot
/dev/sda1                vfat        191551      3360     188192      2% /boot/efi
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/dev/mapper/ubuntu--vg-root / ext4 rw,relatime,errors=remount-ro,data=ordered 0 0
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/dev/sda1 /boot/efi vfat
rw,relatime,mask=0022,dmask=0022,codepage=437,ioccharset=iso8859-
1,shortname=mixed,errors=remount-ro 0 0
<<<ps>>>
(root,23236,3208,0.0) /sbin/init
(root,0,0,0.0) [kthreadd]
...
```

Check_MK - Agent

- Basis Monitoringskript (Memory, CPU, Filesystem, ...)
 - verfügbar für Linux, OSX, Win, Solaris, HP-UX, vSphere ...
- Start via xinetd, ssh, snmp flexibel konfigurierbar

Check_MK - Agent

- Basis Monitoringskript (Memory, CPU, Filesystem, ...)
 - verfügbar für Linux, OSX, Win, Solaris, HP-UX, vSphere ...
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- Keine Konfiguration nötig für Basismonitoring
 - Standard Installation per RPM / DEB möglich

Check_MK - Agent

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 - verfügbar für Linux, OSX, Win, Solaris, HP-UX, vSphere ...
- Start via xinetd, ssh, snmp flexibel konfigurierbar
- Keine Konfiguration nötig für Basismonitoring
 - Standard Installation per RPM / DEB möglich
- Agent ist erweiterbar über einfache „local“ Checks oder Plugins

Check_MK - Agent Local Check

- Null-Konfiguration-Ergebnisse-Direkt-ins-Dashboard-Durchreichen-Lösung
- Skript in Agent local Verzeichnis ablegen

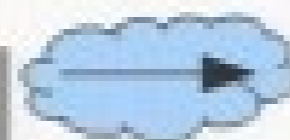
Check_MK - Agent Local Check

- Null-Konfiguration-Ergebnisse-Direkt-ins-Dashboard-Durchreichen-Lösung
- Skript in Agent local Verzeichnis ablegen



Agent Skript

```
/usr/lib/check_mk_agent/local/sftp_errors
```

Check_MK Magic



Server

State	Service	Icons	Status Detail
CRIT	SFTP_from_customer	 	CRIT - 6 files found

Check_MK - Agent Local Check

- Error Verzeichnis auflisten
- Falls Einträgen gefunden werden, Monitor als kritisch betrachten
- Anzahl der Einträge als Performance Daten weitergeben

```
/usr/lib/check_mk_agent/local/sftp_errors
#!/usr/bin/perl
$dir = "/srv/sftp/from_customer/error/";
unless(-d $dir){
    print "3 SFTP_from_customer - $dir not a directory\n";
    exit;
}

@files = glob "$dir/*";
$num_errors = @files;

if (@files){
    print "2 SFTP_from_customer errors=$num_errors $num_errors files found\n";
} else {
    print "0 SFTP_from_customer errors=$num_errors $num_errors files found\n";
}
```

Check_MK - Agent Local Check

- Einfaches Output Format
- Format
 - ExitCode Servicename Performancedaten PluginOutput

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/usr/lib/check_mk_agent/local/sftp_errors
#!/usr/bin/perl
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}
```

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@files = glob "$dir/*";
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    exit;
}

@files = glob "$dir/*";
$num_errors = @files;

if (@files){
    print "2 SFTP_from_customer errors=$num_errors $num_errors files found\n";
} else {
    print "0 SFTP_from_customer errors=$num_errors: $num_errors files found\n";
}
```

Check_MK - Agent Plugin

- Skript in Agent Plugin Verzeichnis ablegen
- Noch einfacheres Output Format
- Output wird von Check_MK Server Komponente verarbeitet
- Erlaubt damit Schwellwertkonfiguration auf Monitoring Server

Check_MK - Agent Local Check

- Einfaches Output Format
- Format
 - ExitCode Servicename Performancedaten PluginOutput

```
/usr/lib/check_mk_agent/local/sftp_errors
#!/usr/bin/perl
$dir = "/srv/sftp/from_customer/error/";
unless(-d $dir){
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$num_errors = @files;

if (@files){
    print "2 SFTP_from_customer errors=$num_errors $num_errors files found\n";
} else {
    print "0 SFTP_from_customer errors=$num_errors: $num_errors files found\n";
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Check_MK - Agent Local Check

- Null-Konfiguration-Ergebnisse-Direkt-ins-Dashboard-Durchreichen-Lösung
- Skript in Agent local Verzeichnis ablegen

Agent Skript

```
/usr/lib/check_mk_agent/local/sftp_errors
```

Check_MK Magic



Server

State	Service	Links	Status Detail
CRIT	SFTP_from_customer		CRIT - 6 files found

Check_MK - Agent Plugin

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Check_MK - Agent Plugin

- Skript in Agent Plugin Verzeichnis ablegen
- Noch einfacheres Output Format
- Output wird von Check_MK Server Komponente verarbeitet
- Erlaubt damit Schwellwertkonfiguration auf Monitoring Server

```
/usr/lib/check_mk_agent/plugins/directory_count_entries
#!/usr/bin/perl
print "<<<directory_count_entries>>\n";
$dir = "/srv/sftp/from_customer/error/";

$num_errors = -1;
if (-d $dir) {
    @files = glob "$dir/*";
    $num_errors = @files;
}

print "$dir $num_errors\n";
```

Check_MK - Agent Plugin

- Skript in Agent Plugin Verzeichnis ablegen
- Noch einfacheres Output Format
- Output wird von Check_MK Server Komponente verarbeitet
- Erlaubt damit Schwellwertkonfiguration auf Monitoring Server

```
/usr/lib/check_mk_agent/plugins/directory_count_entries
#!/usr/bin/perl
print "<<<directory count entries>>>\n";
$dir = "/srv/sftp/from_customer/error/";

$num_errors = -1;
if (-d $dir){
    @files = glob "$dir/*";
    $num_errors = @files;
}

print "$dir $num_errors\n";
```

Open Monitoring Distribution & Check_MK

Nagios Historie

OMD - Distribution für Monitoring Tools

Check_MK – GUIs

Check_MK – Agent

Check_MK – Checks

Customizing Check_MK

Check_MK – Server Checks

- Skript in `~/local/share/check_mk/checks` Verzeichnis ablegen

```
OMD[site]:~/local/share/check_mk/checks/directory_count_entries
```

Check_MK – Server Checks

- Skript in `~/local/share/check_mk/checks` Verzeichnis ablegen
- Default Schwellwerte angeben

```
#!/usr/bin/python
directory_count_entries_default_levels = (1,1) # (warn, critical)
```

Check_MK – Server Checks

- Skript in `~/local/share/check_mk/checks` Verzeichnis ablegen
- Default Schwellwerte angeben
- Inventory Methode registrieren

```
#!/usr/bin/python
directory_count_entries_default_levels = (1,1) # (warn, critical)

def inventory_directory_count_entries(info):
    inv = []
    for directory, num_entries irrelevant in info:
        inv.append((directory, "directory_count_entries_default_levels"))
    return inv
```

Check_MK – Server Checks

- Skript in `~/local/share/check_mk/checks` Verzeichnis ablegen
- Default Schwellwerte angeben
- Inventory Methode registrieren
- Check Methode registrieren

```
--  
def check_directory_count_entries(dir_to_check, params, info):  
    perfdata = []  
    output    = "%s not found in agent output" % dir_to_check  
    code      = 3  
  
    # Schwellwerte holen  
    (warn, crit) = params if params != None else (None, None)  
  
--  
return (code, output, perfdata)
```

Check_MK – Server Checks

- Skript in `~/local/share/check_mk/checks` Verzeichnis ablegen
- Default Schwellwerte angeben
- Inventory Methode registrieren
- Check Methode registrieren

```
...  
def check_directory_count_entries(dir_to_check, params, info):  
    perfdata = []  
    output = "%s not found in agent output" % dir_to_check  
    code = 3  
  
    # Schwellwerte holen  
    (warn, crit) = params if params != None else (None, None)  
    for directory, value in info:  
        num_entries = int(value)  
  
        # match directories  
        if directory == dir_to_check:  
            if warn != None:  
                code = 2 if num_entries >= crit else 1 if num_entries >= warn else 0  
                perfdata.append((directory, num_entries, warn, crit))  
            else:  
                code = 0  
                perfdata.append((directory, num_entries))  
            output = "%s = %d" % (directory, num_entries)  
    return (code, output, perfdata)
```

Check_MK – Server Checks

- Skript in `~/local/share/check_mk/checks` Verzeichnis ablegen
- Default Schwellwerte angeben
- Inventory Methode registrieren
- Check Methode registrieren
- Plugin in Check_MK registrieren

```
'''  
check_info['directory_count_entries'] = {  
    "check_function" : check_directory_count_entries,  
    "inventory_function" : inventory_directory_count_entries,  
    "service_description" : "directory_count_entries %s",  
    "has_perfdata" : True,  
    "group" : "directory_count_entries",  
}
```

Check_MK – Server Schwellwert Konfiguration

- Kleine Python '.mk' Skripte in `~/etc/check_mk`
- GUI Konfiguration `~/etc/check_mk/conf.d/wato/**/rules.mk`
- Mächtiges Regelwerk

Check_MK – Server Schwellwert Konfiguration

- Kleine Python '.mk' Skripte in `~/etc/check_mk`
- GUI Konfiguration `~/etc/check_mk/conf.d/wato/**/rules.mk`
- Mächtiges Regelwerk
- Hierarchisch
 - Schwellwerte aus Unterverzeichnissen überschreiben
Werte aus Verzeichnissen darüber
- Flexibel und Host unabhängig mit Host Tags
- Präzise
 - Starres binden an Host Liste und Check Parameter

Check_MK – Server Schwellwert Konfiguration

- Kleine Python '.mk' Skripte in ~/etc/check_mk
- GUI Konfiguration ~/etc/check_mk/conf.d/wato/**/rules.mk
- Mächtiges Regelwerk
- Hierarchisch
 - Schwellwerte aus Unterverzeichnissen überschreiben
Werte aus Verzeichnissen darüber
- Flexibel und Host unabhängig mit Host Tags
- Präzise
 - Starres binden an Host Liste und Check Parameter

```
checkgroup_parameters[<Check_Gruppe>] = [  
    (<Schwellwerte>, <HostTags>, <HostListe>, <CheckParameter> ),  
] + checkgroup_parameters[<Check_Gruppe>]
```

Check_MK – Server Schwellwert Konfiguration

- Beispiel

- Erst ab 10 Dateien warnen, bei 20 kritisch alarmieren
- Gültig für alle Hosts, die das SFTP error Verzeichnis anbieten

```
#~/etc/check_mk/conf.d/wato/rules.mk
checkgroup_parameters['directory_count_entries'] = [
    ( (10, 20), [], [], ['/srv/sftp/from_customer/error'] ),
] + checkgroup_parameters['directory_count_entries']
```

```
#CMD[site]:~/local/share/check_mk/checks/directory_count_entries
def check_directory_count_entries (dir_to_check, params, info):
    perfdata = []
    output    = "%s not found in agent output" % dir_to_check
    code      = 3

    # Schwellwerte holen
    (warn, crit) = params if params != None else (None, None)
    ...
    return (code, output, perfdata)
```

Check_MK – Server Service Inventur

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 - „Check_MK“ Sammel Service Check kompilieren
 - und in Nagios registrieren
 - Aktiver Check
 - Läuft typischerweise 1x pro Minute
 - Aktualisiert abhängige Check_MK Monitore über Nagios Passive Check API

Open Monitoring Distribution & Check_MK


Nagios Historie

OMD - Distribution für Monitoring Tools

Check_MK – GUIs

Check_MK – Agent

Check_MK – Checks

 Customizing Check_MK

Customizing Check_MK – local Hierarchie

- Directories below `~/local/share/check_mk:`

<code>checks</code>	Your own Check_MK checks
<code>checkman</code>	Man-pages for your checks
<code>pnp-templates</code>	Your own templates for PNP4Nagios
<code>web/</code>	Base directory for extensions and overrides of the Multisite GUI
<code>web/htdocs/images</code>	Put your versions of Multisite icons and images here
<code>web/plugins</code>	Base directory for various Multisite plugins:
<code>web/plugins/dashboard</code>	Definitions for your own dashboards
<code>web/plugins/icons</code> <code>Host/Service-Icons</code>	Icon plugins for custom icons in Multisite views in the columns
<code>web/plugins/pages</code> <code>framework</code>	Definitions for your own web applications that use the Multisite framework
<code>web/plugins/perfometer</code>	Your own Perf-O-Meters
<code>web/plugins/sidebar</code>	You own sidebar snapins
<code>web/plugins/views</code> <code>sorters and builtin views</code>	Plugins for Multisite views like own columns, filters, layouts, sorters and builtin views
<code>web/plugins/wato</code>	Plugins for WATO

Customizing Check_MK – Patch Apache Service Check

- Plugin in OMD 1.10 ohne Schwellwertkonfiguration in WATO GUI
- Bugs: Ubuntu Saucy Service Check liefert unbekannte Werte
 - Apache 2.2 → Apache 2.4 Upgrade

Customizing Check_MK

- Check_MK Agent (Client) liefert Rohdaten
 - Login zu Monitoring Client
 - Patch Agent Plugin

```
#CLIENT
#/usr/lib/check_mk_agent/plugins/apache_status
...
print '<<<apache_status>>>'
for proto, address, port in servers:
    try:
        url = '%s://%s:%s/server-status?auto' % (proto, address, port)
        # Try to fetch the status page for each server
    ...
```

Customizing Check_MK

- Check_MK Server Check-Skript wertet Plugin Output aus
 - Patch Server Service Check
 - Inventur Modus
 - Check Modus

```
#SERVER
#CMD[site]:~/share/check_mk/checks/apache_status
def inventory_apache_status(info):
    data = apache_status_parse(info)
    inv = []
    for item in data.keys():
        inv.append((item, None))
    return inv

def check_apache_status(item, no_params, info):
    all_data = apache_status_parse(info)
    if item not in all_data:
        return (3, 'UNKNOWN - Unable to find instance in agent output')

check_info['apache_status'] = {
    "check_function" : check_apache_status,
    "inventory_function" : inventory_apache_status,
    "service_description" : "Apache %s Status",
    "has_perfdata" : True,
}
```

Customizing Check_MK – Apache Status

- Bugfix auf Server Seite
- Kopiere Check in „local“ Hierarchie
- Füge neue Status Werte hinzu

```
CMD[site]:~$ diff -u (,local/)share/check_mk/checks/apache_status
--- share/check_mk/checks/apache_status      2013-06-10 14:48:59.000000000 +0200
+++ local/share/check_mk/checks/apache_status 2014-03-14 15:16:58.287681438 +0100
@@ -38,6 +38,10 @@
     'BytesPerReq':      (13, float),
     'BytesPerSec':     (14, float),
     'Scoreboard':     (15, str),
+   'ConnsTotal':      (16, int),
+   'ConnsAsyncWriting': (17, int),
+   'ConnsAsyncKeepAlive': (18, int),
+   'ConnsAsyncClosing': (19, int),
 }
```

Customizing Check_MK – Apache Status

The screenshot shows the Check_MK web interface. The left sidebar contains a navigation menu with the following items: Tactical Overview, Quicksearch, Views, Bookmarks, WATO - Configuration, Main Menu, Hosts & Folders, Host Tags, Global Settings, Host & Service Parameters, Host Groups, Service Groups, Users & Contacts, Roles & Permissions, Contact Groups, Time Periods, Distributed Monitoring, Audit Logfile, Backup & Restore, Logfile Pattern Analyzer, and Event Console. The main content area is titled 'Parameters for Inventorized Checks' and features a 'Main directory' dropdown menu. Below this, a yellow box contains the text: 'Use these rules in order to define parameters like filesystem service detection (inventory) of Check_MK.' The 'Applications, Processes & Services' section is expanded, showing a list of checks with their corresponding values. The 'Apache Status' check is circled in red.

Check Name	Value
Active Directory Replication	0
Apache Status	0
JVM memory levels	1
Logwatch Event Console Forwarding	0
Logwatch Patterns	2
MS Exchange message queues	0
MSSQL Backups	0
MSSQL Locks	0
Memory levels for DB2 memory usage	0
MySQL Connections	0
MySQL InnoDB Throughput	0
MySQL Sessions & Connections	0
Number of mails in outgoing mail queue	0

Customizing Check_MK

- WATO GUI
 - Generiert Check_MK Python Konfiguration
 - Datenstruktur für Schwellwerte überlegen
 - Mit einfacher DSL WATO Web Plugin erweitern

Customizing Check_MK – Apache Status

```
#CMD[site]:~/local/share/check_mk/web/plugins/wato/check_parameters.py
register_check_parameters(
    subgroup_applications,
    "apache_status",
    ("Apache Status"),
    Dictionary(
        elements = [
            ("OpenSlots",
             Tuple(
                 title = _("Remaining Open Slots"),
                 help = _("Here you can set the number of remaining open slots"),
                 elements = [
                     Integer(title = _("Warning if above"), label = _("slots")),
                     Integer(title = _("Critical if above"), label = _("slots"))
                 ]
             )
        ]
    ),
    TextAscii(
        title = _("Apache Server"),
        help = _("A string-combination of servername and port, e.g. 127.0.0.1:5000.")
    ),
    "first"
)
```

Customizing Check_MK – Apache Status

New rule Apache Status omd-admin (admin) 14:22

Conditions

Folder
The rule is only applied to hosts directly in or below this folder.

Host tags
Agent type:
Criticality:
Networking Segment:
The rule will only be applied to hosts fulfilling all of of the host tag conditions listed here, even if they appear in the list of explicit host names.

Explicit hosts
 Specify explicit host names
You can enter a number of explicit host names that rule should or should not apply to here. Leave this option disabled if you want the rule to apply for all hosts specified by the given tags.

Apache Server

A string-combination of servername and port, e.g. 127.0.0.1:5000.
 Specify explicit values

Value

Remaining Open Slots
Here you can set the number of remaining open slots

Warning if above slots
Critical if above slots

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Check_MK – GUIs

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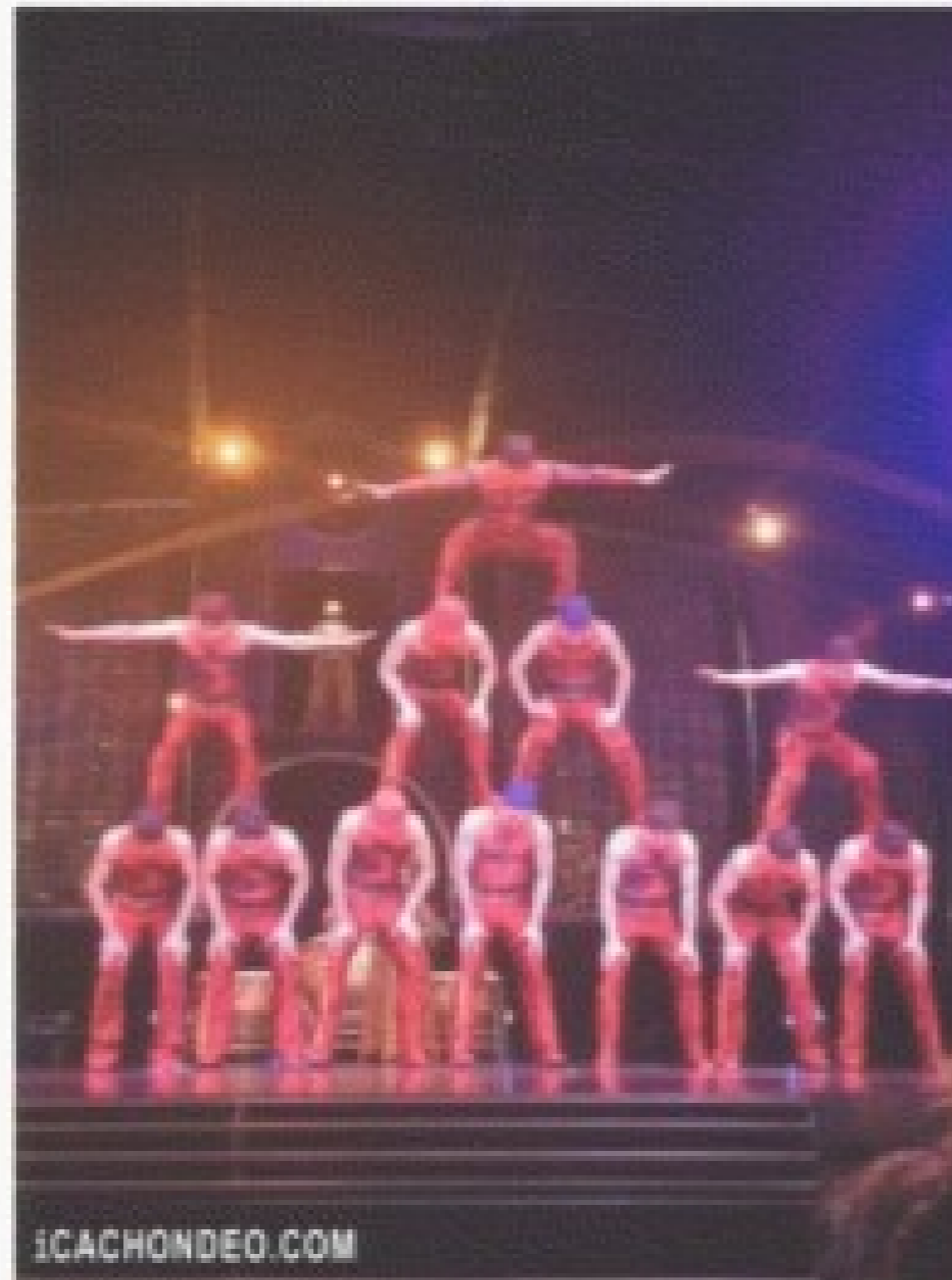
Customizing Check_MK

Zusammenfassung

- Nagios
 - Tut Gutes, aber im Hintergrund
 - Check_MK stoppt Konfigurationsalpträume

Zusammenfassung

- OMD rockt



Fragen?

Danke