

# Monitoring von Bienen & mehr

18. AUGSBURGER LINUX-INFOTAG 2019

# Agenda

1. EINFÜHRUNG INS MONITORING
2. ANWENDUNGSBEISPIELE
3. FEATURES
4. IMPLEMENTIERUNG VON CHECK\_MK
5. KURIOSSES MONITORING IN ACTION:  
BIENENMONITORING
6. NORMALES MONITORING IN ACTION II:  
MONITORING VON TYPISCHER IT-INFRASTRUKTUR





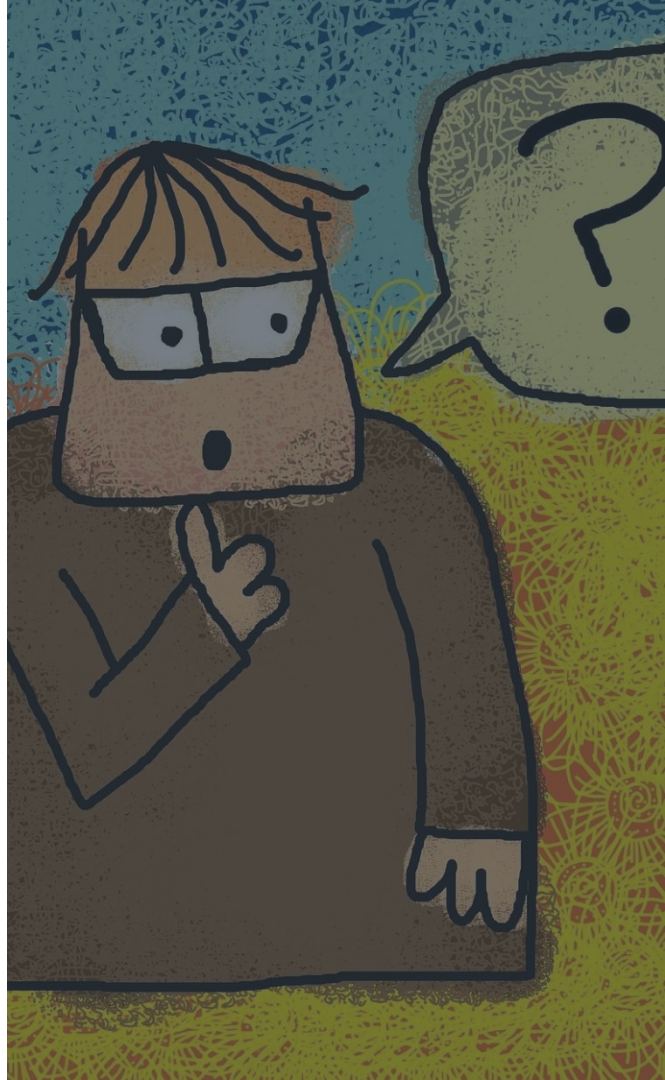
ABOUT ME

# Óscar Nájera

- PhD in Strongly Correlated Electrons Systems
- Open-source contributor: e.g. Sphinx-Gallery
- Emacs and ArchLinux user
- Developing the monitoring software Check\_MK at Mathias Kettner
- Currently working on capacity management for Check\_MK

# Wieso brauche ich das?

- “Aber in meinem System gibt es doch keine Fehler”
- Software oder Hardware ist fehleranfällig –  
irgendetwas ist schon oder geht immer kaputt
- Lieber proaktiv sein vs. Anrufe von Nutzern zu bekommen
- Man spart sich Geld, indem man das richtige Problem behebt - 5€ Patch-Kabel < Server upgrade





EINFÜHRUNG INS MONITORING

# Über Check\_MK



CHECK\_MK

- Vollständiges System für die Überwachung von IT Systemen
- Open Source und kommerzielle Version
- Aus München, 30 Leute, hauptsächlich Entwickler
- >35% aller DAX Unternehmen nutzen Check\_MK, mehr als 1.700 bezahlende Kunden in 35 Ländern

# Was kann ich überwachen?



# Servermonitoring

Services of Host windows-hyperv

33 rows cmkadmin (admin) 10:11

STATE	SERVICE	ICONS	STATUS DETAIL	AGE	CHECKED	PERF-O-METER
CRIT	System Time		CRIT - Offset is -149059285 sec (warn/crit at 30/60 sec)	2017-10-10 09:12:06	5 m	-4.7 y
WARN	Filesystem C:/ClusterStorage/ds01/		WARN - 80.4% used (402.05 of 499.94 GB), (warn/crit at 80.00/90.00%), trend: 0.00 B / 24 hours	2017-10-10 09:12:06	5 m	80.4%
OK	Check_MK		OK - [agent] Version: 1.2.5i1, OS: windows, execution time 0.1 sec	2017-10-10 09:12:06	5 m	50.0 ms
OK	Check_MK Discovery		OK - no unmonitored services found, no vanished services found	2017-10-10 09:12:06	46 m	
OK	Bonding Interface 10GTeam		OK - mode: HyperVPort, Speed:20 Gbps, NIC2/b8:ca:3a:fa:d0:b8 up, NIC1/b8:ca:3a:fa:d0:b8 up, bond status: up	2017-10-10 09:12:06	5 m	
OK	Filesystem C:/		OK - 46.9% used (255.02 of 544.12 GB), trend: 0.00 B / 24 hours	2017-10-10 09:12:06	5 m	46.9%
OK	Filesystem C:/ClusterStorage/ds03/		OK - 56.3% used (281.26 of 499.94 GB), trend: 0.00 B / 24 hours	2017-10-10 09:12:06	5 m	56.3%
OK	Filesystem C:/ClusterStorage/ds04/		OK - 65.0% used (325.10 of 499.94 GB), trend: 0.00 B / 24 hours	2017-10-10 09:12:06	5 m	65%
OK	Filesystem C:/ClusterStorage/snapinfo/		OK - 6.0% used (59.88 of 994.58 MB), trend: 0.00 B / 24 hours	2017-10-10 09:12:06	5 m	6%
OK	Interface 1		OK - [Broadcom BCM57800 NetXtreme II 10 GigE [NDIS VBD Client] 136] (Connected) 1.41 Gbit/s, in: 0.00 B/s(0.0%), out: 0.00 B/s(0.0%)	2017-10-10 09:12:06	5 m	0.0% 0.0%
OK	Interface 2		OK - [Broadcom BCM57800 NetXtreme II 10 GigE [NDIS VBD Client] 135] (Connected) 1.41 Gbit/s, in: 0.00 B/s(0.0%), out: 0.00 B/s(0.0%)	2017-10-10 09:12:06	5 m	0.0% 0.0%
OK	Interface 3		OK - [isatap.{2EA12A36-B518-4031-B9CC-E1A3623E5A92}] (Connected) 100.0 Kbit/s, in: 0.00 B/s(0.0%), out: 0.00 B/s(0.0%)	2017-10-10 09:12:06	5 m	0.0% 0.0%
OK	Interface 4		OK - [isatap.{0D54898F-F28D-421D-AA4E-9894DCA88651}] (Connected) 100.0 Kbit/s, in: 0.00 B/s(0.0%), out: 0.00 B/s(0.0%)	2017-10-10 09:12:06	5 m	0.0% 0.0%
OK	Interface 5		OK - [isatap.{FB1996CD-4E53-4783-B636-C03AD30A88FD}] (Connected) 100.0 Kbit/s, in: 0.00 B/s(0.0%), out: 0.00 B/s(0.0%)	2017-10-10 09:12:06	5 m	0.0% 0.0%

## Beispielmetriken

- CPU load
- Memory
- Filesysteme
- Mounts
- Interfaces
- Jobs
- Uptime
- Logs
- And much more

# Mailservermonitoring

The screenshot displays the Checkmk monitoring interface. On the left is a sidebar with navigation options: TACTICAL OVERVIEW, DASHBOARDS, SERVER PERFORMANCE, EVENT CONSOLE PERFORMANCE, MICRO CORE STATISTICS, SITE STATUS, QUICKSEARCH, BOOKMARKS, and VIEWS. The main area shows a list of services for 'Host server-windows-msexch-3'. Each service is represented by a row with a status icon (OK), a name, and a detailed status message.

Status	Service Name	Details
OK	Exchange Replication Health ServerLocatorService	OK - Test Passed
OK	Exchange Replication Health TasksRplListener	OK - Test Passed
OK	Exchange Replication Health TopListener	OK - Test Passed
OK	Exchange DAG ContentIndex of ABQ-AQXDB-01	OK - Healthy
OK	Exchange DAG ContentIndex of NCQ-MSXDB-01	OK - Healthy
OK	Exchange DAG CopyQueue of ABQ-AQXDB-01	OK - Queue length is 0
OK	Exchange DAG CopyQueue of NCQ-MSXDB-01	OK - Queue length is 0
OK	Task WOE Clear Exchange Log Files	OK - Service Status: operation completed successfully (0x0), Last run time: 21.06.2017 20:00:00, Next run time
OK	Interface MAPLE-NET	OK - Teaming Status (up), Members: [7 (Connected), 2 (Connected)] 20.00 Gbit/s
OK	Interface DUMMY-NET	OK - Teaming Status (up), Members: [8 (Connected), 3 (Connected)] 20.00 Gbit/s
OK	Queue Active Mailbox Delivery	OK - 0 entries
OK	Queue Active Remote Delivery	OK - 0 entries
OK	Queue Retry Remote Delivery	OK - 0 entries
OK	Queue Poison Queue Length	OK - 0 entries
OK	Filesystem C:/	OK - 43.8% used (195.27 of 446.11 GB), trend: 0.00 B / 24 hours
OK	Filesystem D:/	OK - 2.92% used (979.23 GB of 32.74 TB), trend: 0.00 B / 24 hours
OK	File C:\Windows\Memory.DMP	OK - Size: 0 B, Age: 902 days
OK	Log Application	OK - no error messages
OK	Log EWS Monitoring Events	OK - no error messages
OK	Log HardwareEvents	OK - no error messages

## Unterstützte Applikationen

- MS Exchange  
(siehe Screenshot)
- Postfix
- gmail
- nullmailer
- Oder via  
SMTP, IMAP ...



# Datenbankmonitoring

Services of Host server-linux-oracle-17

407 rows cmkadmin (admin) 14:55

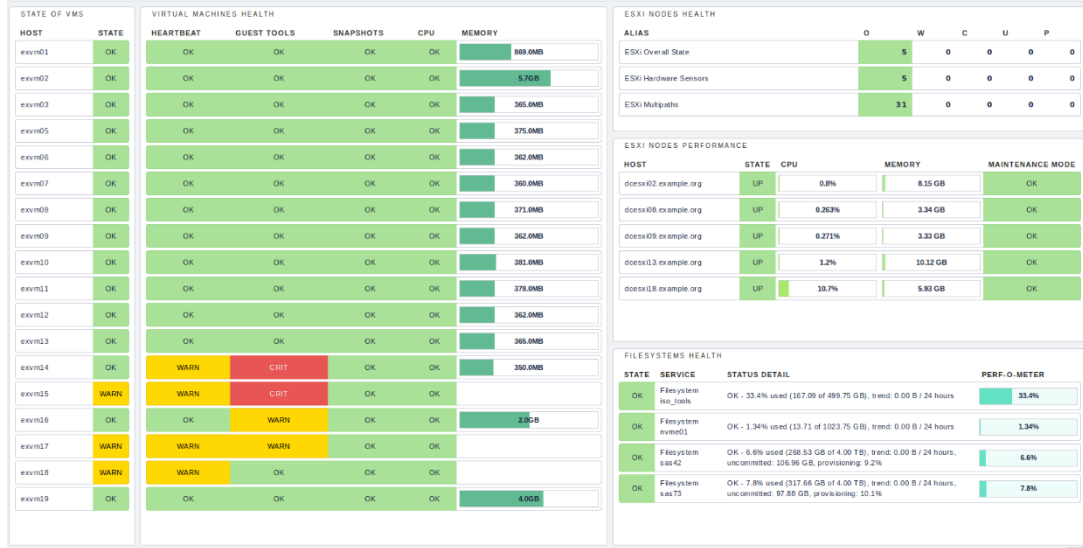
OK	ORA MAE TEMP Tablespace		(5.00 GB of max. 5.00 GB), Free: 0.00 B, 0 Increments (0.00 B)	2017-10-10 09:12:11	6 m	500 GB
OK	ORA MAE UNDOTBS1 Tablespace		OK - ONLINE (UNDO), Size: 5.00 GB, 0.73% used (37.50 MB of max. 5.00 GB), Free: 4.96 GB, 0 Increments (0.00 B)	2017-10-10 09:12:11	6 m	37.50 MB
OK	ORA MAE USERS Tablespace		OK - ONLINE (PERMANENT), Size: 50.00 MB, 0.238% used (2.44 MB of max. 1.00 GB), Free: 1021.56 MB, 974 Increments (974.00 MB)	2017-10-10 09:12:11	6 m	2.44 MB
WARN	ORA MANON Instance	✖	WARN - Database Name MANON, Status OPEN, Role PRIMARY, Version 11.2.0.4.0, Up since 2018-06-30 15:21:45 (274 days), Logins allowed, Log Mode archivelog, Force Logging no <b>WARN</b>	2017-10-10 09:12:11	6 m	275 d
OK	ORA MANON Locks		OK - No locks existing	2017-10-10 09:12:11	6 m	
OK	ORA MANON Logswitches		OK - 0 log switches in the last 60 minutes (warn/crit below -1/-1) (warn/crit at 50/100)	2017-10-10 09:12:11	6 m	0
OK	ORA MANON Long Active Sessions		OK - 0 long active sessions (0, warn/crit at 500/1000)	2017-10-10 09:12:11	6 m	
OK	ORA MANON Performance		OK - Buffer hit ratio: 95.8%, Library cache hit ratio: 59.8%, DB time: 0.0/s, DB CPU: 0.0/s	2017-10-10 09:22:11	6 m	0/s
OK	ORA MANON Processes		OK - 40 of 300 processes are used (13%, warn/crit at 70%/90%)	2017-10-10 09:12:11	6 m	40
OK	ORA MANON Recovery Area		OK - 36.00 MB out of 120.00 GB used (0.0%, warn/crit at 70.0%/90.0%), 0.00 B reclaimable	2017-10-10 09:12:11	6 m	36.00 MB
OK	ORA MANON Recovery Status		OK - primary database, oldest Checkpoint 5 hours 8 min ago	2017-10-10 09:12:11	6 m	308 m / 0.00 s
WARN	ORA MANON Sessions	✖	WARN - 54 sessions (warn/crit at 50/100) <b>WARN</b>	2017-10-10 09:12:11	6 m	54
OK	ORA MANON Undo Retention		OK - 33 min Undoretention (warn/crit at 10 min/5 min), 160 active undoblocks, 0 max concurrent transactions, 22 min max queryen, 0 space errors	2017-10-10 09:12:11	6 m	
OK	ORA MANON ARCHIVELOG RMAN Backup		OK - Last backup 5 hours 3 min ago	2017-10-10 09:12:11	6 m	303 m
OK	ORA MANON AUDIT_DATA Tablespace		OK - ONLINE (PERMANENT), Size: 1.00 GB, 2.85% used (233.56 MB of max. 8.00 GB), Free: 7.77 GB, 56 Increments (7.00 GB)	2017-10-10 09:12:11	6 m	233.56 MB
OK	ORA MANON CONTROLFILE RMAN Backup		OK - Last backup 5 hours 3 min ago	2017-10-10 09:12:11	6 m	303 m

## Unterstützte Datenbanken

- Oracle (screenshot)
- MySQL
- MS SQL
- MS Azure SQL
- AWS RDS
- PostgreSQL
- MongoDB
- IBM DB2
- ...

# Cloudmonitoring

vSphere Dashboard - Level 1

cmkadmin (admin) 16:08 

## Unterstützte Systeme

- vSphere
- HyperV
- AWS
- Azure
- Docker
- Kubernetes
- ...

# Was kann man mit Check\_MK alles machen



IT Zustandsmonitoring  
1700 Plugins 'out of the box'



Log- & ereignisbasiertes  
Monitoring



Dynamisches Graphing &  
effiziente Langzeitspeicherung



Benutzerdefinierbare  
Dashboards



Reporting mit  
Analysen zu Verfügbarkeit & SLA



Managementsicht:  
Business Intelligence



Flexible Meldungs-  
und Alarmsteuerungen



Dynamische Hardware- und  
Softwareinventarisierung



Regelbasierte Konfiguration,  
automatische Serviceerkennung

# Dashboard

## TACTICAL OVERVIEW

Hosts	Problems	Unhandled	Stale
769	7	2	0
Services	Problems	Unhandled	Stale
31156	74	12	5
Events	Problems	Unhandled	Stale
8	8	4	

## QUICKSEARCH

## DASHBOARDS

- Host & Services Problems
- Main Overview
- Network Topology

[... EDIT](#)

## VIEWS

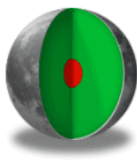
- Overview
- Hosts
- Host Groups
- Services
- Service Groups
- Metrics
- Business Intelligence
- Problems
- Event Console
- Inventory
- Other

[... EDIT](#)

## WATO - QUICKACCESS

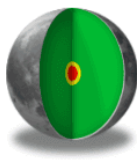


### HOST STATISTICS



Up	762
Down	7
Unreachable	0
In Downtime	0
Total	769

### SERVICE STATISTICS



OK	31082
In Downtime	0
On Down host	0
Warning	57
Unknown	0
Critical	17
Total	31156

### HOST PROBLEMS (UNHANDLED)

STATE	ALIAS	ICONS	AGE	STATUS DETAIL
DOWN	carsv0142ldap	≡	4 m	No IP packet received for 15.847799 s (deadline is 15.000000 s)
DOWN	mucap0213san	≡	38.4 s	No IP packet received for 15.998454 s (deadline is 15.000000 s)

### SERVICE PROBLEMS (UNHANDLED)

STATE	ALIAS	SERVICE	ICONS	STATUS DETAIL	AGE
CRIT	mucsv0456sql	DB2 Backup db2ufbmm:SLKQ04	≡	CRIT - Time since last backup: 314 days	5 m
CRIT	carsv0234rdp	System Time	≡	CRIT - Offset is -47449396 sec (warn/crit at 30/60 sec)	5 m
CRIT	wissv0532sql	MSSQL Blocked Sessions	≡	CRIT - Summary: 153 blocked by 1 ID(s) <b>CRIT</b>	5 m
CRIT	mucsv0443sql	DB2 Tablespace db2ucfam:SHGT04.USERSPACE1	≡	CRIT - 1.3% free, only 1.3% left (warn/crit at 10.0%/5.0%) <b>CRIT</b> , 89.39 GB of 90.56 GB used, State: NORMAL, Type: DMS	4 m
CRIT	lyosv0413jvm	JVM CBF Threads	≡	CRIT - ThreadRate: 0.00, ThreadCount: 103 <b>CRIT</b> (Levels at 80/100), DeamonThreadCount: 64, PeakThreadCount: 111, TotalStartedThreadCount: 798	4 m
WARN	mucsv1228lic	Citrix_terminal_srv_licensing	≡	WARN - Remote Desktop Licensing: stopped (start type is auto)	4 m
WARN	lyosv0413jvm	JVM LOGSERVER Threads	≡	WARN - ThreadRate: 0.00, ThreadCount: 92 <b>WARN</b> (Levels at 80/100), DeamonThreadCount: 90	4 m

### EVENTS OF RECENT 4 HOURS

TIME	ALIAS	SERVICE	OUTPUT
4 m	lyosv0887sql	ASM Diskgroup DATA_MUCORA11	WARN - 80.3% used (1.57 of 1.95 TB), trend: 0.00 B / 24 hours, extern redundancy
4 m	lyosv0887sql	ASM Diskgroup DATA_MUCORA11	WARN - 80.3% used (1.57 of 1.95 TB), trend: 0.00 B / 24 hours, extern redundancy
4 m	lyosv0413jvm	JVM LOGSERVER Threads	WARN - ThreadRate: 0.00, ThreadCount: 92 <b>WARN</b> (Levels at 80/100), DeamonThreadCount: 90, PeakThreadCount: 129, TotalStartedThreadCount: 6047
4 m	lyosv0413jvm	JVM LOGSERVER Threads	WARN - ThreadRate: 0.00, ThreadCount: 92 <b>WARN</b> (Levels at 80/100), DeamonThreadCount: 90, PeakThreadCount: 129, TotalStartedThreadCount: 6047
4 m	lyosv0413jvm	JVM CBF Threads	CRIT - ThreadRate: 0.00, ThreadCount: 103 <b>CRIT</b> (Levels at 80/100), DeamonThreadCount: 64, PeakThreadCount: 111, TotalStartedThreadCount: 798
4 m	lyosv0413jvm	JVM CBF Threads	CRIT - ThreadRate: 0.00, ThreadCount: 103 <b>CRIT</b> (Levels at 80/100), DeamonThreadCount: 64, PeakThreadCount: 111, TotalStartedThreadCount: 798
5 m	mucsv1228lic	Citrix_terminal_srv_licensing	WARN - Remote Desktop Licensing: stopped (start type is auto)

TACTICAL OVERVIEW ✕ -

Hosts	Problems	Unhandled	State
58	3	1	0
Services	Problems	Unhandled	State
1449	68	24	17
Events	Problems	Unhandled	State
613	36	36	

QUICKSEARCH ✕ -

VIEWS ✕ -

- ▶ Overview
- ▶ Hosts
- ▶ Host Groups
- ▼ Services
  - All services
  - Favorite services
  - Recently changed services
  - Serv. by host groups
  - Service check durations
  - Service search
  - Unmonitored services
- ▶ Service Groups
- ▶ Metrics
- ▼ Business Intelligence
  - All Aggregations
  - Hostname Aggregations
  - Problem Aggregations
  - Single-Host Aggregations
  - Single-Host Problems
- ▶ Problems
- ▶ Event Console
- ▶ Inventory
- ▶ Other
- ▼ Blenen
  - Gewichtsvergleich 1,2,4,5,6,8
  - Stock1 - Gewicht-Temperatur

Service icons ☰

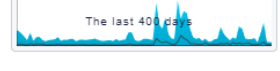
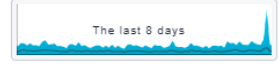
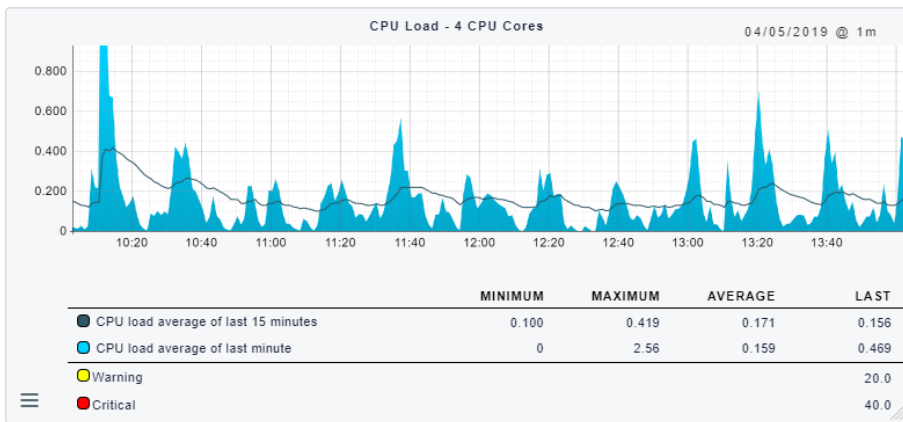
Service state **OK**

Output of check plugin **OK - 15 min load 0.18 at 4 Cores (0.04 per Core)**

Long output of check plugin (multiline)

Service Perf-O-Meter  0.310

Service Graphs



Service Metrics

- CPU load average of last 15 minutes: 0.180
- CPU load average of last 5 minutes: 0.240
- CPU load average of last minute: 0.310

Currently in downtime no

Current check attempt 1/5

The age of the current service state 2016-04-25 15:06:59

The time since the last check of the service 3.65 s

# Rule-based configuration

**TACTICAL OVERVIEW** x -

Hosts	Problems	Unhandled	Stale
769	7	2	0
Services	Problems	Unhandled	Stale
31156	74	12	5
Events	Problems	Unhandled	Stale
8	8	4	

**VIEWS** x -

- Overview
- Hosts
- Host Groups
- Services
- Service Groups
- Metrics
- Business Intelligence
- Problems
- Event Console
- Inventory
- Other

... EDIT

**SITE STATUS** x -

Cardiff (Slave)	online
Lyon (Slave)	online
Munich (Master)	online
Wiesbaden (Slave)	online

**WATO · CONFIGURATION** x -

- Main Menu
- Monitoring Agents
- Hosts
- Host Tags

Abort

## RULE PROPERTIES

### PARAMETERS

#### Levels for filesystem Enable timespecific parameters

Levels for filesystem used space

Dynamic levels



Filesystem larger than  
500 MByte

Percentage used space

Warning if above 75.0 %

Critical if above 85.0 %

Absolute used space

Warning if above 0 MB

Critical if above 0 MB



Filesystem larger than  
100 GByte

Percentage used space

Warning if above 80.0 %

Critical if above 90.0 %

Absolute used space

# Service aggregation (Business Intelligence)

## TACTICAL OVERVIEW

Hosts	Problems	Unhandled	Stale
769	7	2	0
Services	Problems	Unhandled	Stale
31156	74	12	5
Events	Problems	Unhandled	Stale
8	8	4	

## VIEWS

- Overview
  - Hosts
  - Host Groups
  - Services
  - Service Groups
  - Metrics
  - Business Intelligence
    - All Aggregations
    - Hostname Aggregations
    - Problem Aggregations
    - Single-Host Aggregations
    - Single-Host Problems
  - Problems
  - Event Console
  - Inventory
  - Other
- ... EDIT

## BI AGGREGATION GROUPS

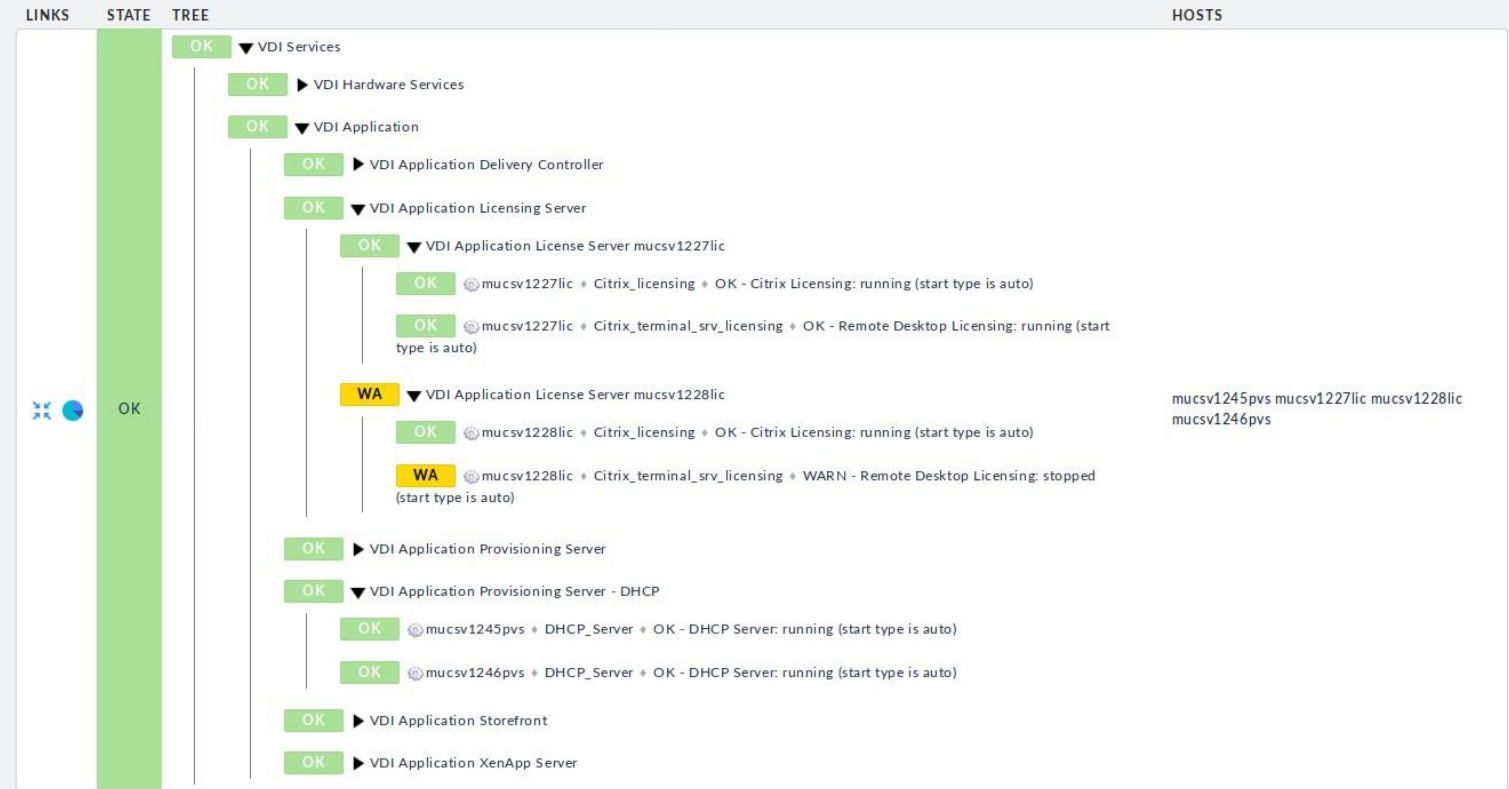
- VDI Services

## WATO · CONFIGURATION

- Main Menu
- Monitoring Agents
- Hosts

1 off Export as PDF Edit View Availability ...

## VDI Services



# Hardware- und Softwareinventarisierung

Navigation bar with icons for search, edit, delete, and status. Includes buttons for '1', 'off', 'WATO', 'Export as PDF', 'Graphs', 'Edit View', and 'Availability'. A 'Combined graphs' button is also present.

Hostname: server-windows-inventory-2

## Inventory Tree

- Hardware
  - Storage
  - System
  - BIOS
    - DATE: 2015-09-21
    - MODEL: PhoenixBIOS 4.0 Release 6.0
    - VENDOR: Phoenix Technologies LTD
    - VERSION: 6.00 2.4
  - Graphic Cards
  - Memory (RAM)
  - Processor

Networking

PORTS AVAILABLE	0
HOSTNAME	zmucvcs05
PORTS	1
INTERFACES	1

Interfaces Open this table for filtering / sorting

INDEX	DESCRIPTION	ALIAS	STATUS	ADMIN	USED	SPEED	PHYSICAL ADDRESS (MAC)	TYPE
1	vmxnet3 Ethernet Adapter	Local Area Connection	up		used	10 Gbit/s	00:50:56:8A:46:22	6 - ethernetCsmacd

## Software

- Applications
- Packages

Open this table for filtering / sorting

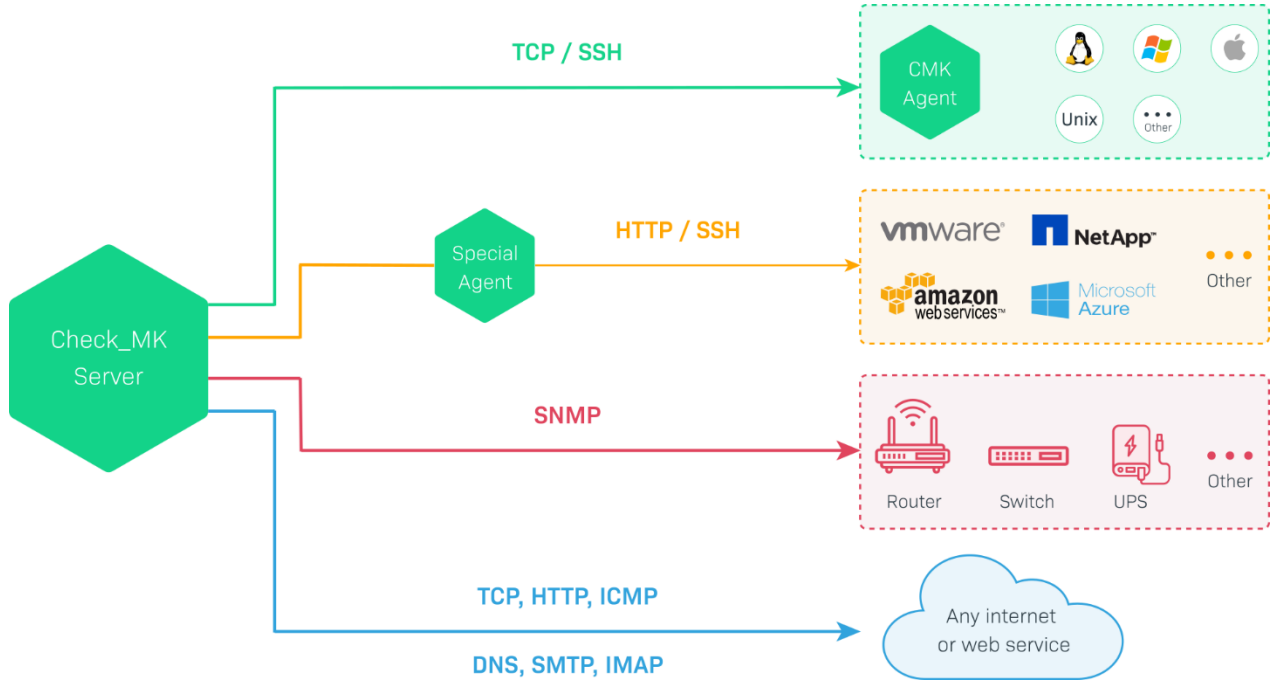
NAME	VERSION	ARCHITECTURE	TYPE	DESCRIPTION	INSTALL DATE	LANGUAGE	PATH	PUBLISHER	SIZE
Microsoft Visual J# 2.0 Redistributable Package - SE (x64)			registry	Microsoft Visual J# 2.0 Redistributable Package - SE (x64)			C:\Windows\Microsoft.NET\Framework64\v2.0.50727\	Microsoft Corporation	



# Implementierung von Check\_MK

DEMO

# Wie Check\_MK an Daten kommt



# Ablauf

- Installation Check\_MK Server (mein Laptop)
- Installation Agent auf Host (auch mein Laptop)
- „Host“ aufnehmen im Monitoring  
(ich überwache mich selber!)
- Plug-Ins nutzen am Beispiel vom Filesystem Plugin
- Benachrichtigung mit Regel erstellen

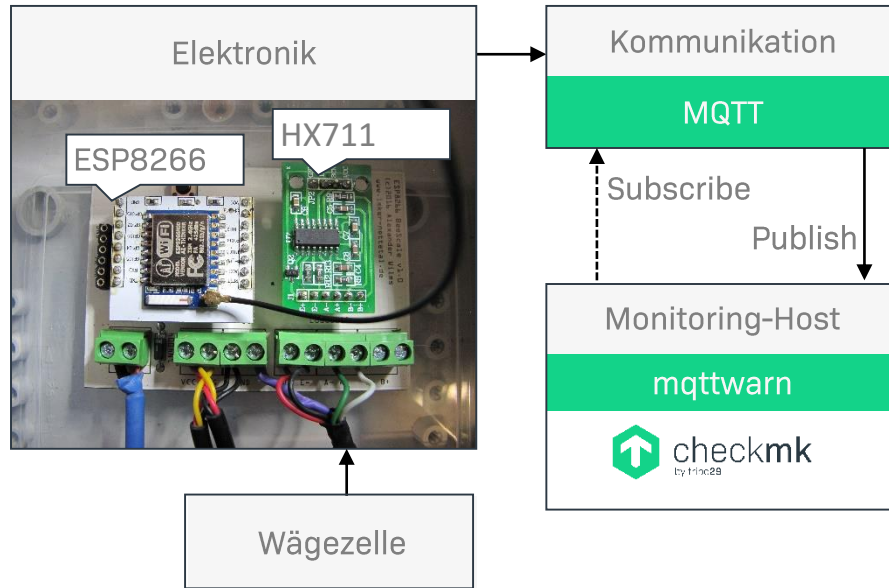
# Kurioses Monitoring in Action: Bienenmonitoring



# “NSA für Bienen”

- Kollege Alex Wilms = begeisterter Imker (der Grund für den Vortrag)
- Stockwaage, Innentemperatur, Außentemperatur, Lichteinfall
- Wieso etwas überhaupt messen?
  - Wieviele Bienen sind unterwegs...
  - Wieviel Nektar wurde geholt...
  - Haut mein Volk ab... (>2kg Gewichtsverlust → Alarm!)
  - Wie gesund ist mein Volk... (Innentemperatur)
- <https://www.imker-nettetal.de/>

# Vom Sensor zum Monitoring



## Kommentar

### Elektronik:

- Aktuell mit ESP8266 Microcontroller, ursprünglich Standard-Arduino
- Lässt sich mit Arduino IDE programmieren
- Wägezellenmessmodul HX711 zum Verarbeiten der Wägezellenwerte

### Kommunikation

- Telemetrie + Updates per MQTT

### Monitoring-Host

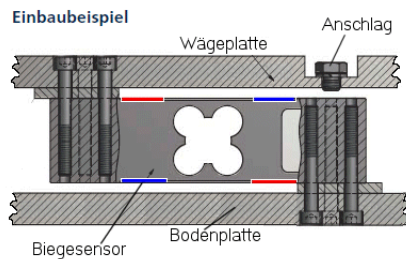
- Mqttwarn = Subscriber, erstellt Spoolfiles
- Asynchroner local spool check für das Monitoring

Anleitung:

<https://community.hiveeyes.org/t/inbetriebnahme-von-node-wifi-mqtt-homie-mit-hiveeyes-anbindung/185>

<https://github.com/jpmens/mqttwarn>

# Die Bienenwaage



## Kommentar

- Gewichtsmessung über Wägezelle
- Verformung durch Gewicht wird über Dehnungsmessstreifen gemessen
- Anleitung auf: <https://www.euse.de/wp/blog/series/bienenwaage/>

BIENENMONITORING

# MQTT Publish

```
homie/beute-2/temperature0/degrees 28.31
homie/beute-2/temperature1/degrees 10.00
homie/beute-2/weight/kilogram 48.31
homie/beute-2/battery/volt 3.30
homie/beute-2/data/__json__ {"Weight":48.31,"Temp1":28.31,"Temp2":10.00}
homie/beute-2/$stats/signal 44
homie/beute-2/$stats/uptime 2324966
homie/beute-2/temperature0/degrees 28.38
homie/beute-2/temperature1/degrees 9.94
homie/beute-2/weight/kilogram 48.31
homie/beute-2/battery/volt 3.30
homie/beute-2/data/__json__ {"Weight":48.31,"Temp1":28.37,"Temp2":9.94}
homie/beute-2/$stats/signal 46
homie/beute-2/$stats/uptime 2325035
```



# Local Checks

```

-rw-r--r-- 1 root root 78 Mär 28 15:31 300beute-2-t1
-rw-r--r-- 1 root root 77 Mär 28 15:31 300beute-2-up
-rw-r--r-- 1 root root 76 Mär 28 15:31 300beute-2-w
-rw-r--r-- 1 root root 69 Mär 28 15:31 300beute-5-sig
-rw-r--r-- 1 root root 79 Mär 28 15:31 300beute-5-t0
-rw-r--r-- 1 root root 80 Mär 28 15:31 300beute-5-t1
-rw-r--r-- 1 root root 75 Mär 28 15:31 300beute-5-up
-rw-r--r-- 1 root root 76 Mär 28 15:31 300beute-5-w
-rw-r--r-- 1 root root 69 Mär 28 15:31 300beute-6-sig
-rw-r--r-- 1 root root 79 Mär 28 15:31 300beute-6-t0
-rw-r--r-- 1 root root 80 Mär 28 15:31 300beute-6-t1
-rw-r--r-- 1 root root 75 Mär 28 15:31 300beute-6-up
-rw-r--r-- 1 root root 76 Mär 28 15:31 300beute-6-w
-rw-r--r-- 1 root root 69 Mär 7 09:11 300beute-7-sig
-rw-r--r-- 1 root root 83 Jun 1 2018 300beute-7-t0
-rw-r--r-- 1 root root 84 Jun 1 2018 300beute-7-t1
-rw-r--r-- 1 root root 67 Mär 7 09:11 300beute-7-up
-rw-r--r-- 1 root root 76 Jun 1 2018 300beute-7-w
-rw-r--r-- 1 root root 69 Mär 7 09:11 300beute-8-sig
-rw-r--r-- 1 root root 79 Aug 26 2018 300beute-8-t0
-rw-r--r-- 1 root root 80 Aug 26 2018 300beute-8-t1
-rw-r--r-- 1 root root 77 Mär 7 09:11 300beute-8-up
-rw-r--r-- 1 root root 76 Aug 26 2018 300beute-8-w
-rw-r--r-- 1 root root 94 Jul 3 2018 300heiz
-rw-r--r-- 1 root root 69 Mär 7 09:11 630beute-3-sig
-rw-r--r-- 1 root root 79 Feb 7 2018 630beute-3-t0
-rw-r--r-- 1 root root 80 Feb 7 2018 630beute-3-t1
-rw-r--r-- 1 root root 69 Mär 7 09:11 630beute-3-up
-rw-r--r-- 1 root root 75 Mär 7 09:11 630beute-3-volt
-rw-r--r-- 1 root root 76 Feb 7 2018 630beute-3-w
-rw-r--r-- 1 root root 69 Mär 7 09:11 630beute-4-sig
-rw-r--r-- 1 root root 77 Dez 17 07:39 630beute-4-t0
-rw-r--r-- 1 root root 78 Dez 17 07:39 630beute-4-t1
-rw-r--r-- 1 root root 65 Mär 7 09:11 630beute-4-up
-rw-r--r-- 1 root root 75 Mär 7 09:11 630beute-4-w
-rw-r--r-- 1 root root 76 Dez 17 07:39 630beute-4-w
-rw-r--r-- 1 root root 153 Nov 25 15:13 honig
root@omd:/var/lib/check_mk_agent/spool#
  
```

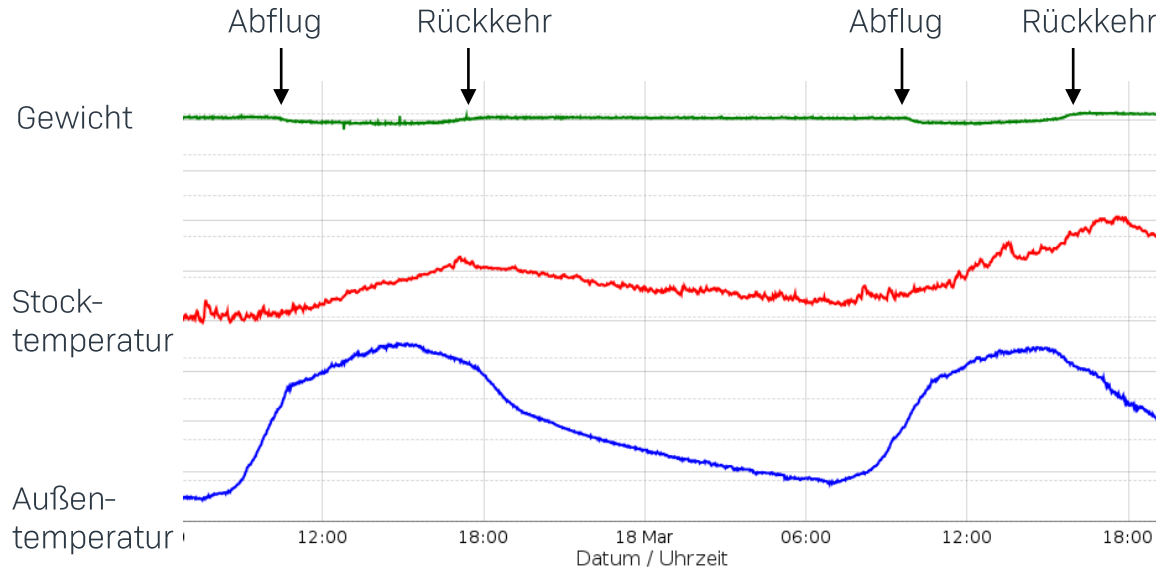
```

root@omd:/var/lib/check_mk_agent/spool# cat 630beute-4-w
<<<<beute-4>>>>
<<<<local>>>>
0 Stock-Gewicht Gewicht=41.11 Gewicht: 41.11kg
  
```

## Kommentar

- Aktuelle Daten für Beuten (Bienenstock) 1,2,5,6
- Keine Daten für Volk 3 (Testwaage) & Volk 7,8 (aktuell kein WLAN am Ort des Volks)
- Daten für asynchrone locale Checks werden im Monitoring-Host /var/lib/check\_mk\_agent/spool gelegt
- Zahl xxx vor Filename = Files, die älter als xxx Sekunden sind, werden ignoriert => Status Unknown
- Aufbau Check:  
0 Stock-Gewicht Gewicht=41.11 Gewicht = 41.11kg  
Status Servicename Metriken Statusdetail

# Was passiert bei schönem Wetter?



## Kommentar

- Jeweils ca. um 11:30
  - Temperatur > 12°C
  - 300g Gewichtabnahme
- Abends wieder Gewichtszunahme um ca. 300g
- Eine Biene wiegt ca. 120mg
- → 2.5k Bienen unterwegs über den Tag (sehr approximativ...)

# Die Bienensaison geht langsam los



# Normales Monitoring in Action II: „Typische“ IT-Infrastruktur

DEMO

ENDE

# Links / Weiterführendes

- Download und mehr Infos zu Check\_MK unter:  
<https://mathias-kettner.de>
- Bienenmonitoring:  
<https://www.imker-nettetal.de/nsa-fuer-bienen-wir-bauen-uns-eine-stockwaage/>
- Mein Kontakt:
  - <https://oscarnajera.com/>
  - Email: hello AT oscarnajera DOT com
  - GitHub: <https://github.com/Titan-C>



# Thank you!



checkmk  
by tribe29

**Mathias Kettner GmbH**  
Kellerstraße 29  
81667 München  
Deutschland

**Web** — [mathias-kettner.de](http://mathias-kettner.de)  
**E-Mail** — [info@mathias-kettner.de](mailto:info@mathias-kettner.de)