

Checkmk
Conference #10



Checkmk 2.3 at a glance



Martin Hirschvogel
Chief Product Officer
Checkmk GmbH

Beyond features...

Major news this year





Synthetic Monitoring

Monitor > Synthetic Monitoring > Synthetic Monitoring

Dashboard Add Dashboards Display Help



Test nodes

2/2

OK tests

12/14

Scheduler status

State	Test node	Summary
OK	munich	Plan scheduling
OK	atlanta	Plan scheduling

Plans

State	Test node	Application	Variant	Summary	Runtime-limit ratio
OK	munich	Webshop	DE	Runtime: 18 seconds, Limit: 1 minute 0 seconds, Ratio: 30.00%, Last execution: 2024-06-08 13:13:00 (UTC+00:00)	30 %
OK	atlanta	Webshop	DE	Runtime: 18 seconds, Limit: 1 minute 0 seconds, Ratio: 30.00%, Last execution: 2024-06-08 13:13:00 (UTC+00:00)	30 %
OK	munich	Webshop	EN	Runtime: 17 seconds, Limit: 1 minute 0 seconds, Ratio: 28.33%, Last execution: 2024-06-08 13:12:00 (UTC+00:00)	28.33 %
OK	atlanta	Webshop	EN	Runtime: 17 seconds, Limit: 1 minute 0 seconds, Ratio: 28.33%, Last execution: 2024-06-08 13:12:00 (UTC+00:00)	28.33 %
OK	munich	checkmk.com		Runtime: 10 seconds, Limit: 1 minute 0 seconds, Ratio: 16.67%, Last execution: 2024-06-08 13:13:00 (UTC+00:00)	16.67 %
OK	atlanta	checkmk.com		Runtime: 10 seconds, Limit: 1 minute 0 seconds, Ratio: 16.67%, Last execution: 2024-06-08 13:13:00 (UTC+00:00)	16.67 %

Top 5: Test runtime

Host	Service	Test runtime	State	Test node	Application	Variant	Test	Summary	Runtime
munich	RMK play.checkmk.com_demo Test: Open Dashboards	7.03 s	CRIT	munich	Webshop	DE	Search Item And Add To Basket	FAIL	
atlanta	RMK play.checkmk.com_demo Test: Open Dashboards	7.03 s	CRIT	atlanta	Webshop	DE	Search Item And Add To Basket	FAIL	
munich	RMK Webshop_checkout_EN Test: Search Item And Add To Basket	6.59 s	OK	munich	Webshop	EN	Search Item And Add To Basket	PASS, Runtime: 7 seconds	6.59 s
atlanta	RMK Webshop_checkout_EN Test: Search Item And Add To Basket	6.59 s	OK	atlanta	Webshop	EN	Search Item And Add To Basket	PASS, Runtime: 7 seconds	6.59 s
munich	RMK play.checkmk.com_demo Test: Open Host Details	4.36 s	OK	munich	checkmk.com		Download software	PASS, Runtime: 1 second	1.04 s

Test runtime

8 s


0

13:50 14:00 14:10 14:20 14:30 14:40 14:50 15:00 15:10

Synthetic Monitoring has arrived

Gain deep insights into your applications' user experience.





checkmk

Login

Email

Password

[Forgot Password?](#)

Login

[New to Checkmk? Try it for free](#)

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Software-as-a-Service version of Checkmk

Zero to monitoring in 5 minutes.



Beyond features...

Major news this year



**Checkmk
Synthetic Monitoring**

Dedicated talk
June 11th, 3pm



**Checkmk Software-as-a-
Service**

Dedicated talk
June 12th, 2pm





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Dedicated talk
June 12th, 2pm



Checkmk MSP

Checkmk MSP

Major upgrade for the 'CME'



Raw

Free and open source IT monitoring for mid-sized infrastructures.

Monitor your entire IT:

- Auto-discover your IT
- Monitor out-of-the-box with 2000+ plug-ins
- Auto-detect issues
- 100% Open Source

and more

Support: Checkmk Community

Enterprise

Scalable and automated enterprise-wide IT monitoring.

Everything in Raw, plus:

- Accelerate and scale up your monitoring
- Automate monitoring operations
- Monitor dynamic workloads
- Visualize your IT

and much more

Support included

Cloud

State-of-the-art IT monitoring for cloud and hybrid infrastructures.

Everything in Enterprise, plus:

- Monitor cloud workloads
- Deploy from cloud marketplaces
- Auto-register any load
- Push and pull agents
- Visualize your cloud

and much more

Support included

MSP

Monitor your customers' hybrid IT. Designed for IT service providers.

Everything in Cloud, plus:

- Multi-customer management & dashboards
- Data segregation
- Data loss protection, if customer connections fail
- White label branding

and much more

Support included

New

Cloud meets Checkmk MSP

All new features



Monitor your customers' IT

Less network worries

Less work

**Agent
push mode**

Cloud meets Checkmk MSP

All new features



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Less network worries

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**Agent
push mode**

**Self-service
agents**

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All new features



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Less work

**Agent
push mode**

**Self-service
agents**

**Cloud
monitoring &
dashboards**

**Grafana
Cloud
integration**

Monitor the cloud

Enable all your
customers

What's new in Checkmk 2.3

Our focus for Checkmk 2.3



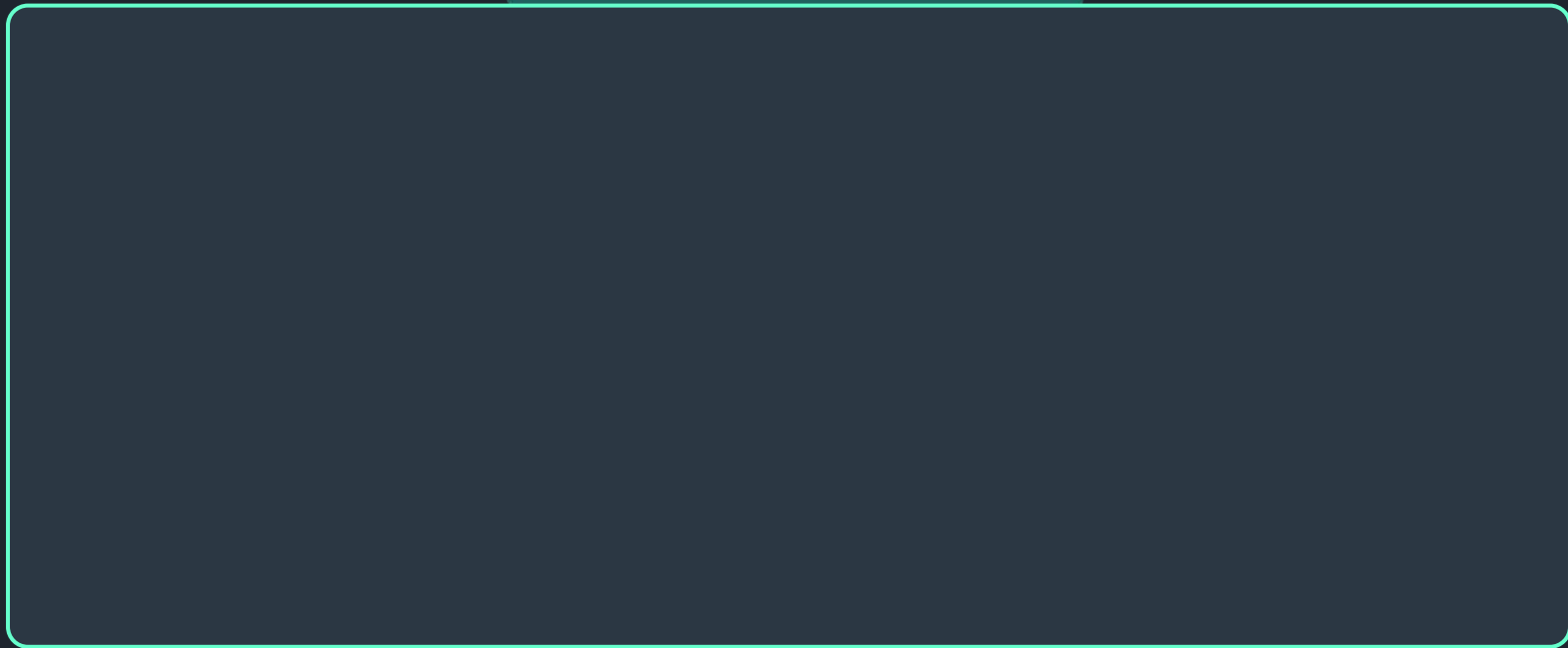
Cloud



Data Center



IoT



Our focus for Checkmk 2.3



Cloud



Data Center



IoT

Monitor anything



Our focus for Checkmk 2.3



Cloud



Data Center



IoT

Monitor anything



Powerful configuration



Our focus for Checkmk 2.3



Cloud



Data Center



IoT

Monitor anything



Powerful configuration



Alerts & analytics



Our focus for Checkmk 2.3



Cloud



Data Center



IoT

Great user experience

for beginners and experts



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Extensible interfaces

for automation & development



Our focus for Checkmk 2.3



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Alerts & analytics



Extensible interfaces

for automation & development



Monitoring platform

Secure & scalable

Our focus for Checkmk 2.3



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Monitor anything



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Extensible interfaces
for automation
& development



Monitoring platform
Secure & scalable



Modern web services monitoring

- ◆ Completely revised HTTP endpoint monitoring
 - ◇ Much more powerful configuration
 - ◇ Much better alerts and status info
- ◆ In-depth certificate monitoring
 - ◇ For all application protocols via TCP, e.g. web sites, LDAP, databases

HTTP web service endpoints to monitor (required)

Service name

Prefix

Use protocol name: HTTP(S) ▾

Name (required)

App1

URL

https://\$HOSTNAME\$/app1

Individual settings to use for this endpoint

Service name

Prefix

Use protocol name: HTTP(S) ▾

Name (required)

App2

URL

https://\$HOSTNAME\$/app2

Individual settings to use for this endpoint

Add new endpoint

Standard settings for all endpoints

Connection buildup

Response time

Fixed levels ▾

Warning at 0 s 300 ms

Critical at 0 s 600 ms

Status code

Certificate validity

How to handle the document



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Add new endpoint

Standard settings for all endpoints

Connection buildup

Response time

Fixed levels ▼

Warning at 0 s 300 ms

Critical at 0 s 600 ms

Status code

Certificate validity

How to handle the document



New in 2.3: Powerful & efficient monitoring of web services

14:00 – 14:30 | Marcel Arentz (Product Manager, Checkmk)

Monitor any MS SQL database

- ◆ Goal: drop-in replacement
- ◆ Auto-detection and high performance
- ◆ Support of a wide range of special MS SQL setups
- ◆ More powerful and fine-grained configuration options
- ◆ Any MS SQL database: locally or remote/in the cloud, e.g. Azure SQL

The screenshot shows the configuration interface for monitoring MS SQL databases. At the top, there is a dropdown menu labeled "Deploy MSSQL Server plug-in". Below this, the "Monitor databases" section is expanded, showing a list of configuration options: Authentication (set to "Local Integrated Authentication (Windows)"), Connection, Data to collect (Sections), Cache age for asynchronous checks, Map data to specific host (Piggyback), Discovery mode of databases, Custom instances, and Options. A second section, "Monitor databases on other hosts", is also expanded, showing its own set of options: Authentication (set to "SQL Database User Credentials"), User (set to "monitoring"), Password (masked with dots), Connection (Host name set to "some.sql-server.databse.windows.net"), Fail over partner, Port, Timeout, and Server certificate policy. Below these sections are the same "Data to collect (Sections)", "Cache age for asynchronous checks", "Map data to specific host (Piggyback)", "Discovery mode of databases", "Custom instances", and "Options" options. At the bottom of the interface, there is a button labeled "Add config to monitor MS SQL database on other hosts".

Monitor any MS SQL database

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New in 2.3: Next generation database monitoring

16:15 – 16:35 | Marcel Arentz (Product Manager, Checkmk)

The screenshot shows the configuration interface for monitoring MS SQL databases. At the top, there is a dropdown menu labeled "Deploy MSSQL Server plug-in". Below this, the "Monitor databases" section is expanded, showing a list of configuration options: Authentication (set to "Local Integrated Authentication (Windows)"), Connection, Data to collect (Sections), Cache age for asynchronous checks, Map data to specific host (Piggyback), Discovery mode of databases, Custom instances, and Options. A section titled "Monitor databases on other hosts" is also visible, containing its own set of configuration options: Authentication (set to "SQL Database User Credentials"), User (set to "monitoring"), Password (masked with dots), Connection (Host name set to "some.sql-server.databse.windows.net"), Fail over partner, Port, Timeout, and Server certificate policy. Below the "Monitor databases on other hosts" section, the same list of configuration options as in the "Monitor databases" section is visible. At the bottom right, there is a button labeled "Add config to monitor MS SQL database on other hosts".

Monitor any Kubernetes Setup



Supported platforms



'Vanilla'
Kubernetes



Google
Kubernetes
Engine



AWS EKS



Azure
AKS



Monitor any Kubernetes Setup



Supported platforms



'Vanilla'
Kubernetes



Google
Kubernetes
Engine




New
Google
Kubernetes
Engine Autopilot




AWS EKS



Azure
AKS



New
VMware
Tanzu



New
K3S



Monitor any Kubernetes Setup



Supported platforms



'Vanilla'
Kubernetes



Google
Kubernetes
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New
Google
Kubernetes
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AWS EKS




Azure
AKS



New
VMware
Tanzu



New
K3S



Red Hat
OpenShift*



Monitor any Kubernetes Setup



Supported platforms



'Vanilla'
Kubernetes



Google
Kubernetes
Engine



Google
Kubernetes
Engine Autopilot

New



AWS EKS



Azure
AKS



VMware
Tanzu

New



New

K3S



Red Hat
OpenShift*

Added support for versions: 1.27 + 1.28

Many bug & usability fixes

(e.g. better handling of node conditions)



Monitor any Kubernetes Setup



Supported platforms



'Vanilla'
Kubernetes



Google
Kubernetes
Engine



New
Google
Kubernetes
Engine Autopilot



AWS EKS



Azure
AKS



New
VMware
Tanzu



New
K3S



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OpenShift*

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Checkmk now an official Google Cloud Partner



- Autopilot: highly managed Kubernetes service by Google Cloud
- Checkmk Kubernetes collectors reviewed by Google security team
- Checkmk one of only 16 workloads allowlisted

The screenshot shows the Google Cloud documentation page for 'Allowlisted Autopilot partner workloads'. The page title is 'Allowlisted Autopilot partner workloads'. Below the title, there is a paragraph: 'The following table describes the allowlisted partner workloads for Autopilot. The partner workload of your clusters depends on the GKE version of the cluster.' Below this paragraph is a table with two columns: 'Partner' and 'Description'. The table has two rows: one for 'Aqua' and one for 'Checkmk'. The 'Checkmk' row is highlighted with a blue border. Below the table, there is a link: 'For more information, refer to [Protecting Cloud Native Workloads on GKE Autopilot](#)'.

Partner	Description
Aqua	Aqua supports securing and ensuring compliance for the full lifecycle of workload, specifically the Kubernetes pods, which run multiple containers with shared sets of resources.
Checkmk	Checkmk helps organizations monitor the reliability and availability of their applications, usage, and proactively address issues that may arise. Checkmk can automatically collect wide data providing visibility into GKE Autopilot performance and health, and visualize it in out-of-the-box dashboards.

Just another pull request



Checkmk / checkmk

Q Type to search

<> Code Pull requests 55 Actions Security 23 Insights Settings

Migrated old Nutanix and added some real checks #521

Closed Yogibaer75 wants to merge 32 commits into `checkmk:master` from `Yogibaer75:nutanix2`

Conversation 40 Commits 32 Checks 0 Files changed 90 +5,198 -470

Changes from all commits File filter Conversations 0 / 90 files viewed Review in codespace Review changes

- prism_cluster_cpu.py
- prism_cluster_io.py
- prism_cluster_mem.py
- prism_containers.py

```
cmk/special_agents/agent_prism.py
115 62 LOGGING.debug("do request..")
116 63 obj = requester.get("cluster")
117 64 LOGGING.debug("got %d keys", len(obj.keys()))
65 + with SectionWriter("prism_info") as w:
```

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Added some checks?



Before

Nutanix

Type of Check	Plugin Name
Nutanix Prism: Containers	<code>prism_containers</code>
Nutanix Prism: Storage Pools	<code>prism_storage_pools</code>
Nutanix Prism: Alerts	<code>prism_alerts</code>
Nutanix Prism: General Info about a Cluster	<code>prism_info</code>

Added some checks?

Nutanix

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Before



Nutanix

Type of Check	Plugin Name
Nutanix Prism: Alerts	<code>prism_alerts</code>
Nutanix Prism: Cluster CPU	<code>prism_cluster_cpu</code>
Nutanix Prism: Cluster Memory	<code>prism_cluster_mem</code>
Nutanix Prism: Containers	<code>prism_containers</code>
Nutanix Prism: General Info about a Cluster	<code>prism_info</code>
Nutanix Prism: High Availability Info about a Cluster	<code>prism_ha</code>
Nutanix Prism: Host CPU	<code>prism_host_stats_cpu</code>
Nutanix Prism: Host Hardware Disks	<code>prism_host_disks</code>
Nutanix Prism: Host I/O	<code>prism_host_stats</code>
Nutanix Prism: Host IO	<code>prism_cluster_io</code>
Nutanix Prism: Host Memory	<code>prism_host_stats_mem</code>
Nutanix Prism: Host Network Interfaces	<code>prism_host_networks</code>
Nutanix Prism: Host Storage Capacity	<code>prism_host_usage</code>
Nutanix Prism: Hosts	<code>prism_hosts</code>
Nutanix Prism: Protection Domains	<code>prism_protection_domains</code>
Nutanix Prism: Remote Tunnel	<code>prism_remote_support</code>
Nutanix Prism: Storage Pools	<code>prism_storage_pools</code>
Nutanix Prism: VM CPU	<code>prism_vm_stats_cpu</code>
Nutanix Prism: VM I/O	<code>prism_vm_stats</code>
Nutanix Prism: VM Memory	<code>prism_vm_stats_mem</code>
Nutanix Prism: VM Status	<code>prism_vm_status</code>
Nutanix Prism: VM Tools	<code>prism_vm_tools</code>
Nutanix Prism: VM state	<code>prism_vms</code>

Now

In-depth Nutanix monitoring now available!



Cluster monitoring

OK	NTNX Alerts	≡	2 alerts, Last worst on 2022-10-06 16:16:27: 'It is recommended that NGT on the VM SRV-APP-01 with uuid 2da80b43-fe19-4750-bbc6-17eef8d90935 should be upgraded to the latest version supported by the cluster.NGT update contains bug fixes and improvements, which will improve the overall product experience.'	
OK	NTNX Cluster	≡	Name: Cluster, Version: 5.20.4.6, Nodes: 3	
OK	NTNX Cluster Controller IO	≡	I/O Bandwidth: 0.21 MB/s, IOPS: 0.01, I/O Latency: 1.5 ms	
OK	NTNX Cluster CPU	≡	Total CPU: 13.95%	1
OK	NTNX Cluster Memory	≡	Total Memory Usage: 27.26%	
OK	NTNX Container NutanixManagementShare	≡	Used: 0.08% - 12.4 GB of 16.2 TB, trend per 1 day 0 hours: +0 B, trend per 1 day 0 hours: +0%	
OK	NTNX Container SelfServiceContainer	≡	Used: 0.04% - 5.77 GB of 16.2 TB, trend per 1 day 0 hours: +0 B, trend per 1 day 0 hours: +0%	
OK	NTNX Container VMs	≡	Used: 22.35% - 4.66 TB of 20.8 TB, trend per 1 day 0 hours: +0 B, trend per 1 day 0 hours: +0%	2
OK	NTNX Host SRV-AHV-01	≡	has state NORMAL, Number of VMs 4, Memory 376 GiB, Boottime 2022-08-11 15:40:02	
OK	NTNX Remote Tunnel	≡	Remote Tunnel is disabled	
OK	NTNX Storage StoragePool	≡	Used: 22.42% - 9.35 TB of 41.7 TB, trend per 1 day 0 hours: +0 B, trend per 1 day 0 hours: +0%, SSD capacity: 41.7 TB, SSD free: 32.3 TB	2
OK	NTNX VM NTNX-SRV-AHV-01-CVM	≡	with status on - on Host SRV-AHV-01	
WARN	NTNX VM Nutanix-Move	≡	with status off - on Host None WARN	

In-depth Nutanix monitoring now available!



Node monitoring

OK	NTNX CPU	☰ 📁	Total CPU: 11.64%
OK	NTNX HW Disk 1	☰	Model: SAMSUNG MZ7LH3T8HMLT-00005, Serial: S456NW0R504280, State: healthy, Mount state: disk is mounted
OK	NTNX HW Disk 2	☰	Model: SAMSUNG MZ7LH3T8HMLT-00005, Serial: S456NW0R504279, State: healthy, Mount state: disk is mounted
OK	NTNX HW Disk 4	☰	Model: SAMSUNG MZ7LH3T8HMLT-00005, Serial: S456NW0R504283, State: healthy, Mount state: disk is mounted
OK	NTNX HW Disk 5	☰	Model: SAMSUNG MZ7LH3T8HMLT-00005, Serial: S456NW0R504275, State: healthy, Mount state: disk is mounted
OK	NTNX I/O	☰ 📁	is 4.88 KiB read and 11.7 KiB write
OK	NTNX Memory	☰ 📁	Usage: 30.61% - 115 GiB of 376 GiB
OK	NTNX Storage Capacity	☰ 📁	Used: 23.96% - 3.33 TB of 13.9 TB, trend per 1 day 0 hours: +0 B, trend per 1 day 0 hours: +0%, Total SAS: 0 B, Free SAS: 0 B, Total SSD: 13.9 TB, Free SSD: 10.6 TB

VM monitoring

OK	NTNX CPU	☰ 📁	CPU usage: 5.61%, CPU ready: <0.01%
OK	NTNX I/O	☰ 📁	is 10.7 KiB read and 8.79 KiB write
CRIT	NTNX Memory	☰ 📁	Usage: 95.89% - 76.7 GiB of 80.0 GiB (warn/crit at 80.00%/90.00% used)
OK	NTNX VM State	☰	is in state on, defined on SRV-AHV-03, CPUs: 16, Memory: 80.0 GiB
OK	NTNX VMTools	☰	Tools with version 2.1.5 installed, Tools enabled



checkmk



Monitor



Customize



Setup



Help

Extension packages

Setup > Maintenance > Extension packages

Packages

Display

Help

Find on this site

Redfish compatible Mgmt Controller

New built-in extension package



Enabled (active on this site)

No entries.

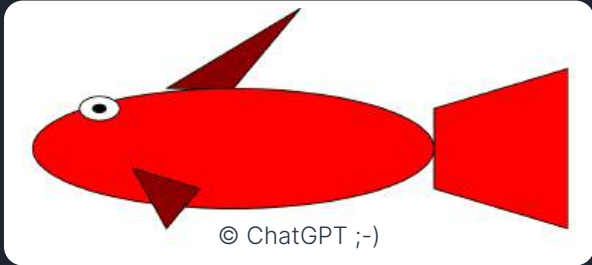
Enabled (inactive on this site)

No entries.

All packages (enabled or disabled)

Actions	Name	Version	Title	Author
 	redfish	2.3.38	Redfish Restful API Checks	Andreas Doehler

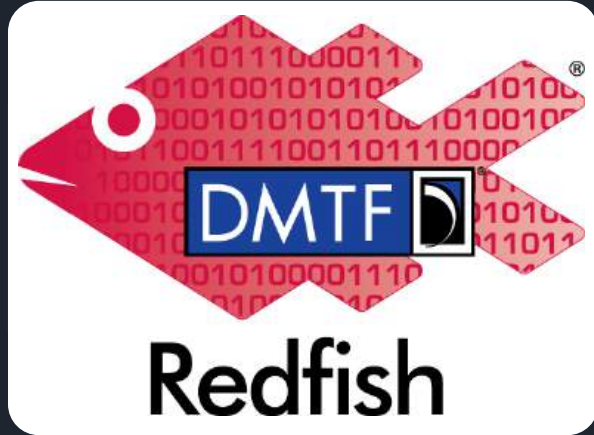
What is Redfish?



What is Redfish?



DMTF's Redfish® is a standard designed to deliver simple and secure management for converged, hybrid IT and the Software Defined Data Center.



Redfish support on server

- ◆ Advantech SKY Server BMC
- ◆ Dell iDRAC BMC
- ◆ Fujitsu iRMCS5 BMC
- ◆ HPE iLO BMC
- ◆ HPE Moonshot BMC
- ◆ Lenovo XClarity Controller (XCC) BMC
- ◆ Supermicro X10 & X11 BMC
- ◆ IBM Power Systems BMC
- ◆ IBM Power Systems Flexible Service Processor
- ◆ Cisco Integrated Management Controller
- ◆ Data center equipment, e.g. PDU

Started with a few specific implementations



[browse](#)

[upload new package](#)

[how to upload](#)



Lenovo XClarity Controller

by [Andreas-Doehler](#)

Lenovo XClarity Monitoring with **Redfish** REST API

👁 3083 📄 1804 📅 21 Jan 2022



HPE iLO Restful API Checks

by [Andreas-Doehler](#)

HPE iLO Monitoring with **Redfish** REST API

👁 6680 📄 3624 📅 21 Jan 2022



Dell iDRAC Restful API Checks

by [Andreas-Doehler](#)

Dell iDRAC Monitoring with **Redfish** REST API

👁 4716 📄 1853 📅 22 Apr 2022

Too many single agents... let's build a universal one

It can't be that hard...



[browse](#)

[upload new package](#)

[how to upload](#)



Lenovo XClarity Controller

by [Andreas-Doehler](#)

Lenovo XClarity Monitoring with **Redfish** REST API

👁 3083 📄 1804 📅 21 Jan 2022



HPE iLO Restful API Checks

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HPE iLO Monitoring with **Redfish** REST API

👁 6680 📄 3624 📅 21 Jan 2022



Dell iDRAC Restful API Checks

by [Andreas-Doehler](#)

Dell iDRAC Monitoring with **Redfish** REST API

👁 4716 📄 1853 📅 22 Apr 2022



Redfish Restful API Checks

by [Andreas-Doehler](#)

Generic **Redfish** REST API Checks

👁 4710 📄 4769 📅 22 May 2023

Server monitoring via Redfish has arrived



Dell iDRAC7

OK	CPU CPU.Socket.1	☰	Type: CPU, Model: Intel(R) Xeon(R) Gold 6438N, Cores: 32, Threads: 64, Speed 2000 MHz	
OK	CPU CPU.Socket.2	☰	Type: CPU, Model: Intel(R) Xeon(R) Gold 6438N, Cores: 32, Threads: 64, Speed 2000 MHz	
OK	Drive Disk.Bay.0:Enclosure.Internal.0-0:RAID.Slot.3-1-Physical Disk 0:0:0	☰	Size: 1117GB, Speed 12 Gbs	
OK	Drive Disk.Bay.9:Enclosure.Internal.0-1:RAID.Slot.3-1-Physical Disk 0:1:9	☰	Size: 18626GB, Speed 6 Gbs	
OK	Fan System Board Fan1A	☰ 🚩	Speed: 5520.0 rpm	5520 rpm
OK	Fan System Board Fan1B	☰ 🚩	Speed: 4920.0 rpm	4920 rpm
OK	Memory DIMM.Socket.A1	☰	Size: 32GB, Type: DDR5-4800 MultiBitECC	
OK	Memory DIMM.Socket.A2	☰	Size: 32GB, Type: DDR5-4800 MultiBitECC	
OK	Memory Summary	☰	Capacity: 256GB, with State: Component State: Normal, Rollup State: Normal, This resource is enabled.	
OK	Network adapter NIC.Embedded.1	☰	Component State: Normal, Rollup State: Normal, This resource is enabled.	
OK	Network adapter NIC.Integrated.1	☰	Model: BCM 2P 25G SFP 57414S OCP NIC, SeNr: , PartNr: 024FG6	
OK	Physical port NIC.Embedded.1-1-1	☰	Link: LinkDown, Speed: 0Mbps, MAC: C4:CB:E1:B9:3F:48	
OK	Physical port NIC.Integrated.1-1-1	☰	Link: LinkUp, Speed: 10000Mbps, MAC: 04:32:01:1A:06:E0	

Server monitoring via Redfish has arrived



Dell iDRAC7

OK	Power supply 0-PS1 Status	☰ 📄	414.5 Watts input, 385.5 Watts output, 204.0 V input, Capacity 1400.0 Watts, Typ PWR SPLY,1400W,RDNT,LTON	414.5 Watt / 385.5 Watt
OK	Power supply 1-PS2 Status	☰ 📄	5.0 Watts input, 0.0 Watts output, 204.0 V input, Capacity 1400.0 Watts, Typ PWR SPLY,1400W,RDNT,LTON	5 Watt / 0 Watt
OK	Storage controller AHCI.Embedded.1-1	☰	Type: Sapphire Rapids SATA AHCI Controller, RaidLevels: , DeviceProtocols:	
OK	Storage controller AHCI.Embedded.2-1	☰	Type: Sapphire Rapids SATA AHCI Controller, RaidLevels: , DeviceProtocols:	
OK	Storage controller RAID.Slot.3-1	☰	Type: PERC H755 Adapter, RaidLevels: RAID0,RAID1,RAID5,RAID6,RAID10,RAID50,RAID60, DeviceProtocols: SAS,SATA,NVMe	
OK	System state	☰	System with SerialNr: MXXXXXXXXX, has State: Component State: Normal, Rollup State: Normal, This resource is enabled.	
OK	Temperature CPU1 Temp	☰ 📄	Temperature: 49.0 °C	49 °C
OK	Temperature System Board Exhaust Temp	☰ 📄	Temperature: 41.0 °C	41 °C
OK	Voltage CPU1 VCCD VR	☰ 📄	Location: CPU, SensorNr: 52, Value: 1.1 V	1.13 V
OK	Voltage PS2 Voltage 2	☰ 📄	Location: PowerSupply, SensorNr: 110, Value: 204.0 V	204 V
OK	Volume Disk.Virtual.238:RAID.Slot.3-1	☰	Raid Type: RAID6, Size: 186265.0GB	
OK	Volume Disk.Virtual.239:RAID.Slot.3-1	☰	Raid Type: RAID1, Size: 1117.2GB	

Server monitoring via Redfish has arrived



HPE iLO6

OK	CPU 1	Type: CPU, Model: AMD EPYC 9374F 32-Core Processor , Cores: 32, Threads: 64, Speed maximum 4400 MHz
OK	CPU 2	Type: CPU, Model: AMD EPYC 9374F 32-Core Processor , Cores: 32, Threads: 64, Speed maximum 4400 MHz
OK	Drive 0-1.92TB 16G NVMe SSD	
OK	Drive 0-3.2TB 16G NVMe SSD	
OK	Drive 1-1.92TB 16G NVMe SSD	
OK	Fan 1	
OK	Fan 2	
OK	Memory proc1dimmm1	
OK	Memory proc1dimmm2	
OK	Memory proc1dimmm3	
OK	Memory Summary	
OK	Network adapter DE07A000	
OK	Network adapter DE080000	
OK	Physical port DE07A000	Link: LinkUp, Speed: 10000Mbps, MAC: 30:3e:a7:xx:8c:4
OK	Physical port DE080000	Link: LinkUp, Speed: 25000Mbps, MAC: 30:3e:a7:xx:a4:3
OK	Power supply 1-HpeServerPowerSupply	0.0 Watts input, 229.0 Watts output, 228.0 V input, Capac Watts, Typ P38997-B21
OK	Power supply 0-HpeServerPowerSupply	0.0 Watts input, 209.0 Watts output, 229.0 V input, Capac Watts, Typ P38997-B21
OK	Storage controller DA00000A	Type: Embedded SATA Controller #1, RaidLevels: , Device SATA
OK	Storage controller DA000015	Type: Embedded SATA Controller #2, RaidLevels: , Device SATA
OK	Storage controller DE045000	Everything looks OK - 1 detail available
OK	Storage controller DE044000	Everything looks OK - 1 detail available
OK	System state	System with SerialNr: CZ2331034R, has State: Component Normal, Rollup State: Normal, This resource is enabled.
OK	Temperature 01-Inlet Ambient	Temperature: 28.0 °C
OK	Temperature 06-P1 DIMM 7-12	Temperature: 43.0 °C
OK	Volume 1	Raid Type: RAID1, Size: 1788.5GB

Modus operandi for Checkmk 2.3 and outlook



Checkmk 2.3: available as built-in MKP

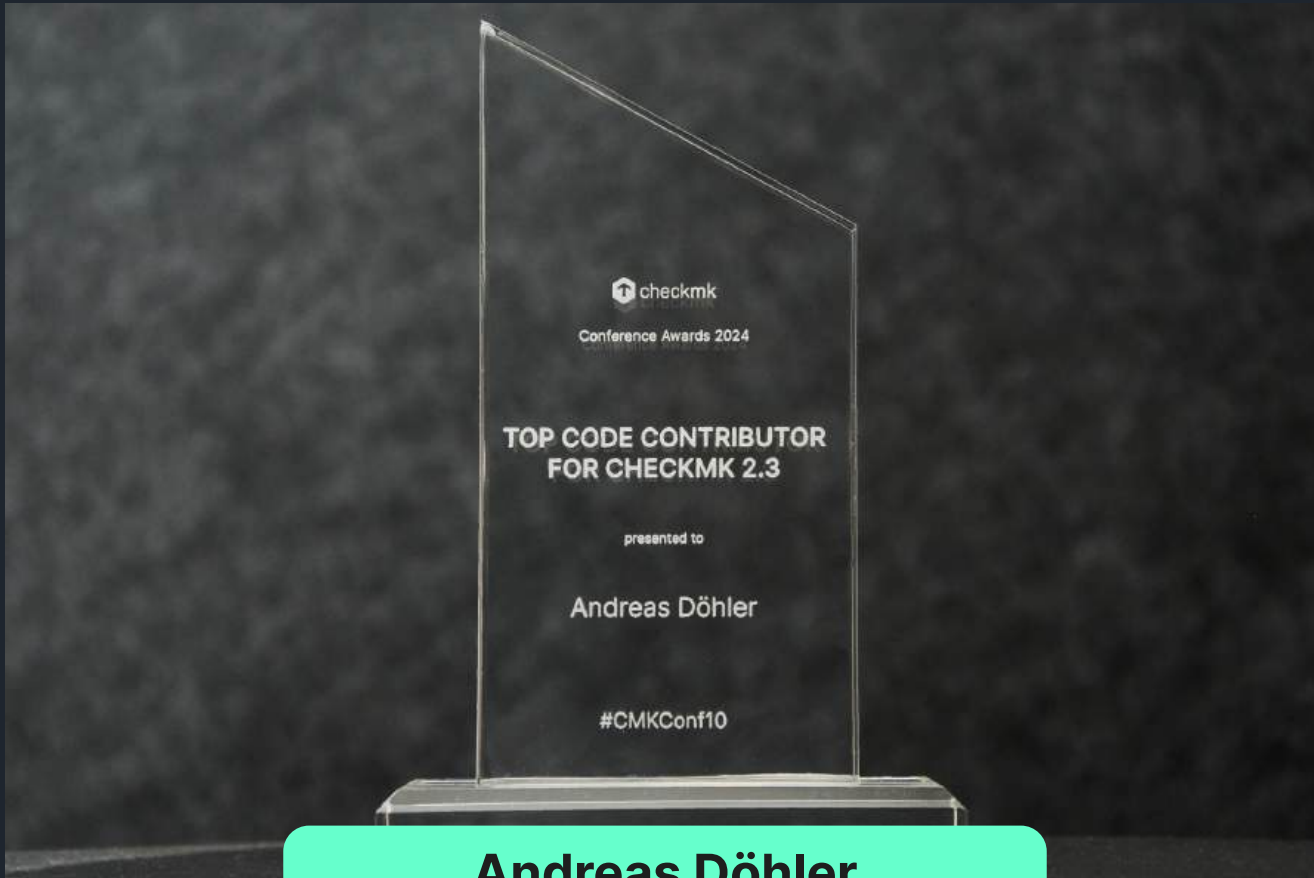
'Experimental' feature

- ◆ Proven by many users, but further feedback required for 'generic' solution
- ◆ Current mode allows Andreas to react quickly
 - ◇ Mainlining limits larger changes as incompatibilities need to be minimal
- ◆ Feedback (create issues) & updates (download MKPs) via https://github.com/Yogibaer75/Check_MK-Things

Checkmk 2.4: native support

'Stable' feature

Will be mainlined for 2.4 and maintained then by Checkmk GmbH



Andreas Döhler
Top code contributor

Future-proof storage monitoring



Pure Storage FlashArray monitoring

New major integration via Purity API

- ◆ Internal alerts
- ◆ Overall capacity
- ◆ Volume capacity
- ◆ Storage bay
- ◆ Ethernet, fibre channel & InfiniBand ports
- ◆ Fans

Future-proof storage monitoring



Pure Storage FlashArray monitoring

New major integration via Purity API

- ◆ Internal alerts
- ◆ Overall capacity
- ◆ Volume capacity
- ◆ Storage bay
- ◆ Ethernet, fibre channel & InfiniBand ports
- ◆ Fans

NetApp ONTAP monitoring

Drop-in replacement for existing monitoring

- ◆ Previous *NetApp via WebAPI* monitoring based on ONTAPI (ZAPI)
 - ◇ ONTAPI not enabled by default anymore
 - ◇ NetApp planned removal for early 2024
- ◆ New *NetApp via Ontap REST API* monitoring based on NetApp ONTAP
 - ◇ Same check plug-ins as before
 - ◇ Future-proof

ntopng integration for Network Flow Monitoring



Early 2023: needs attention

- ◆ Originally built versus REST API v1
- ◆ Timeouts, buggy views, usability issues

ntopng integration for Network Flow Monitoring



Early 2023: needs attention

- Originally built versus REST API v1
- Timeouts, buggy views, usability issues

Fixed and improved ntopng integration

- Built on REST API v2
- Everything works properly (views, filters, dropdowns)
- Many usability / error message fixes
- Better performance
 - Re-architecture to handle long API calls (incl. implementation of pagination)

75+ improvements to existing integrations



Examples



Cisco Meraki: power supplies
Linux bonding interfaces: expected bonding mode

75+ improvements to existing integrations



Examples



Cisco Meraki: power supplies
Linux bonding interfaces: expected bonding mode



Connection state of interface on Windows
Microsoft Azure tags imported as service labels

75+ improvements to existing integrations



Examples



More checks

Cisco Meraki: power supplies
Linux bonding interfaces: expected bonding mode



More info

Connection state of interface on Windows
Microsoft Azure tags imported as service labels



Improved
configuration

check_mail: enable EWS and OAuth2 for Microsoft Mail monitoring*
CPU load: alert on 1 & 5-min average (before: only 15-min average)

Better controls for CPU load monitoring

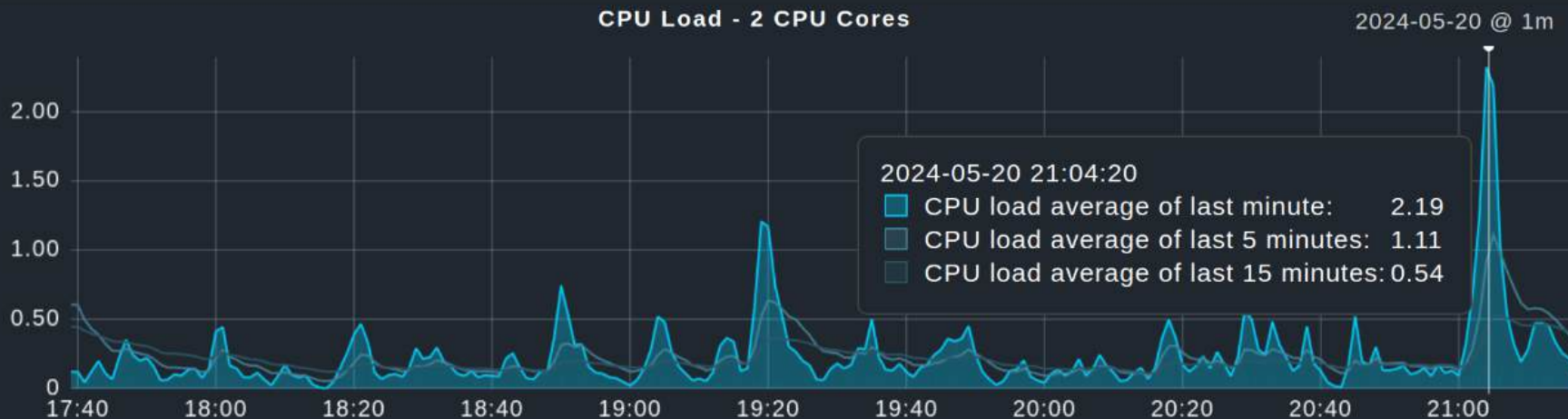
Example for improved configuration



15 min load: 0.40
15 min load per core: 0.20 (2 cores)

Alerting limited to 15-min average

0.16



Minimum

Maximum

Average

Last

2024-05-20 21:04

CPU load average of last minute: 0.15, CPU load average of last 5 minutes: 0.15, CPU load average of last 15 minutes: 0.16

Better controls for CPU load monitoring

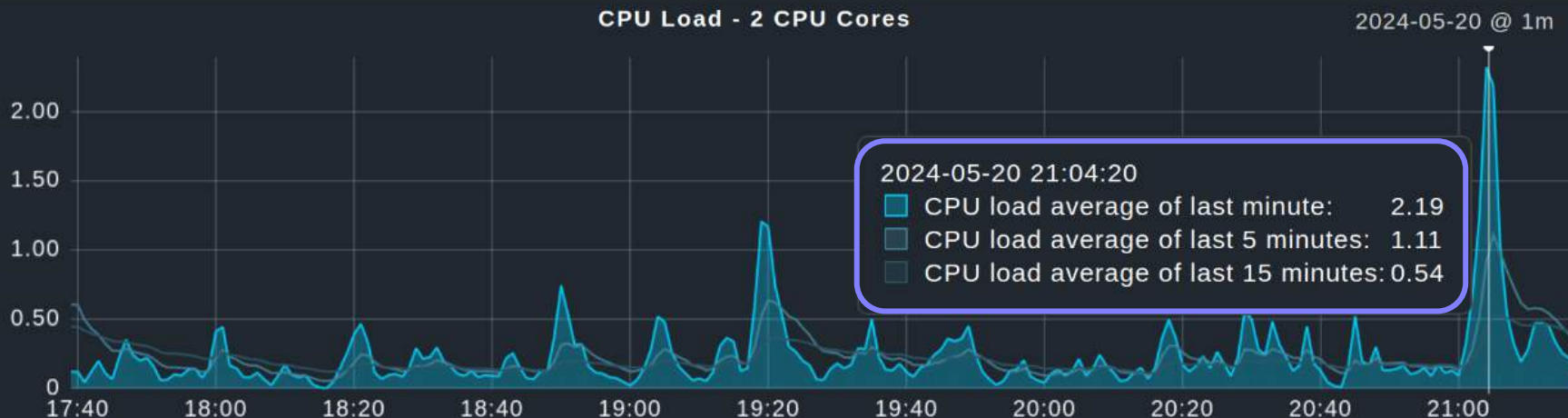
Example for improved configuration



15 min load: 0.40
15 min load per core: 0.20 (2 cores)

Alerting limited to 15-min average

0.16



Minimum

Maximum

Average

Last

2024-05-20 21:04

0.00 0.00 0.00 0.15 0.16



Better controls for CPU load monitoring

Example for improved configuration

Before

▼ Value

Levels on CPU load

Fixed Levels ▼

Warning at 5.0 per core

Critical at 10.0 per core

Better controls for CPU load monitoring

Example for improved configuration



Before

▼ Value

Levels on CPU load

Fixed Levels

Warning at 5.0 per core

Critical at 10.0 per core

Now

▼ Value

✘ Levels on CPU load: 1 minute average

Fixed Levels

Warning at 5.0 per core

Critical at 10.0 per core

Levels on CPU load: 5 minutes average

Levels on CPU load: 15 minutes average

Better controls for CPU load monitoring

Example for improved configuration



Before

▼ Value

Levels on CPU load

Fixed Levels

Warning at 5.0 per core

Critical at 10.0 per core

Now

▼ Value

✖ Levels on CPU load: 1 minute average

Fixed Levels

Warning at 5.0 per core

Critical at 10.0 per core

Levels on CPU load: 5 minutes average

Levels on CPU load: 15 minutes average

This is not the default!

Default parameters included in manpage now




checkmk




CPU Load

Setup > Services > Catalog of check plug-ins > Operating Systems > CPU, Memory and Kernel Performance > CPU Load

Related Display Help  

Parameter rule set

 CPU load (not utilization!)

Example for parameters

- Levels on CPU load: 1 minute average
- Levels on CPU load: 5 minutes average
- Levels on CPU load: 15 minutes average

Enable timespecific parameters

Default parameters

Levels on CPU load: 1 minute average:	Do not impose levels, always be OK
Levels on CPU load: 5 minutes average:	Do not impose levels, always be OK
Levels on CPU load: 15 minutes average:	5.0 per core, 10.0 per core



Help



User



100+ new and improved monitoring plug-ins



30+

new systems

100+ new and improved monitoring plug-ins



30+

new systems

75+

improvements

100+ new and improved monitoring plug-ins



30+

new systems

75+

improvements

450+

fixes

100+ new and improved monitoring plug-ins



30+

new systems

75+

improvements

450+

fixes



Our focus for Checkmk 2.3



Cloud



Data Center



IoT

Great user experience
for beginners
and experts



Monitor anything



Powerful configuration



Alerts & analytics



Extensible interfaces
for automation
& development



Monitoring platform
Secure & scalable



Host labels for 'all' operating systems

Label key	Description	Example values
cmk/os_type	Broad OS type category	windows linux unix
cmk/os_platform	Specific OS family	debian ubuntu
cmk/os_name	The name of the OS	Ubuntu AIX Microsoft Windows 10 Pro
cmk/os_version	The version of the operating system	22.04 10.0.19045

Host labels for 'all' operating systems



Label key	Description	Example values
cmk/os_type	Broad OS type category	windows linux unix
cmk/os_platform	Specific OS family	debian ubuntu
cmk/os_name	The name of the OS	Ubuntu AIX Microsoft Windows 10 Pro
cmk/os_version	The version of the operating system	22.04 10.0.19045





Customize



Setup



Help



User



Before

▼ Conditions

Condition type Explicit conditions ▼

Folder Main ▼

Host tags ▼ Add tag condition

Host labels Add label condition

Explicit hosts

Item

Service labels Add label condition

X has ▼ cmk/os_family:linux
X has not ▼ environment:test

X has ▼ app:foo



Customize



Setup

Folder Main

Main

Host tags

Host labels

Label

is

cmk/os_type:linux



or

cmk/os_type:windows



and

(Select label)



and

is

cmk/aws/tag/environment:production



and

(Select label)



Add to condition

Explicit hosts

Item

Service labels



Help

Combine labels as you wish!

More flexible rule conditions



Label

is

app:foo



or

app:bar



or

(Select label)





Customize



Setup

Folder

Main

Yes, also via the REST API!!!

Host tags

Host labels

Label

is

cmk/os_type:linux



or

cmk/os_type:windows



and

(Select label)



and

is

cmk/aws/tag/environment:production



and

(Select label)



Add to condition

Explicit hosts



Item



Service labels

Label

is

app:foo



or

app:bar



or

(Select label)



Help

Combine labels as you wish!

More flexible rule conditions





Services of Host my-linux-server

Monitor > Overview > All hosts > my-linux-server > Services of Host

Commands Host Services Export Display Help

my-linux-server

State	Service	Icons	Summary
OK	Check_MK		[agent] Success, [piggyback] Success (but no data found for this host), executio
OK	Check_MK Agent		Version: 2.3.0-2024.05.15, OS: linux, TLS is not activated on monitored host (se plug-ins: 0, Local checks: 0
WARN	Check_MK Discovery		Services: all up to date, New host labels: 6 (check_mk: 5, omd_info: 1) WARN
OK	CPU load		15 min load: 0.19 (8 cores)
OK	CPU utilization		Total CPU
OK	Disk IO SUMMARY		Read: 0.00 B/s, Write: 1.67 MB/s, Latency: 429 microseconds
OK	File /etc/check_mk/fileinfo.cfg		Size: 56 B, Age: 57 days 8 hours
OK	File /home/martinhirschvogel/test		Size: 0 B, Age: 57 days 8 hours
OK	Filesystem /		Used: 27.29% - 136 GB of 499 GB, trend per 1 day 0 hours: +418 GB, trend per +83.87%, Time left until disk full: 20 hours 48 minutes
OK	Filesystem /boot		Used: 24.37% - 420 MB of 1.73 GB, trend per 1 day 0 hours: +0 B, trend per 1

More labels →
more clicks?

checkmk



Monitor



Customize



Setup

Here comes the revised periodic service discovery



Before

Automatically update service configuration

Mode

- Add unmonitored services, new host labels ▲
- Add unmonitored services, new host labels
- Remove vanished services
- Add unmonitored & remove vanished services and host labels
- Refresh all services and host labels (tabula rasa)

Limited control

- ◆ No option to only update host labels

Here comes the revised periodic service discovery



Before

Automatically update service configuration

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- Add unmonitored services, new host labels ▲
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- Refresh all services and host labels (tabula rasa)

Limited control

- No option to only update host labels

Now

Automatically update service configuration

Parameters

- Custom service configuration update ▼
- Monitor undecided services
- Remove vanished services
- Update service labels
- Update host labels

Fine-grained control

- Combine options as you need
- Available also in bulk service discovery and REST API

Here comes the revised periodic service discovery



Before

Automatically update service configuration

Mode

- Add unmonitored services, new host labels ▲
- Add unmonitored services, new host labels
- Remove vanished services
- Add unmonitored & remove vanished services and host labels
- Refresh all services and host labels (tabula rasa)

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Now

Automatically update service configuration


Parameters

- Custom service configuration update ▼
- Monitor undecided services
- Remove vanished services
- Update service labels
- Update host labels


Fine-grained control

- ◆ Combine options as you need
- ◆ Available also in bulk service discovery and REST API







checkmk



Monitor



Customize



Setup

Services of host switch-cisco-c3650

Setup > Hosts > Main > SNMP > Properties of host switch-cisco-c3650 > Services of host switch-cisco-c3650

Actions Host Settings Display Help ⌵ ✓ 🔄 + - ⬆


ⓘ Changed services: 4 | Undecided services: 0 | Vanished services: 0 | New host labels: 0 | Vanished host labels: 0 | Changed host labels: 0

▼ **Changed services (4)**


State	Service	Summary	Previously discovered	Newly discovered
🔄 ? ✖ ☰ OK	Interface GigabitEthernet1/0/1	[SAUG01-02.A1(LI)], (up), MAC: 58:F3:9C:AD:E0:81, B/s (0%)	interface/alias:AUG03	🔄 interface/alias:SAUG01
🔄 ? ✖ ☰ OK	Interface GigabitEthernet1/1/1	[Up_SAUG01-01.1/0/7], (up), MAC: 58:F3:9C:AD:E0:B1, 0.00 B/s (0%)		+ interface/alias:SAUG01
🔄 ? ✖ ☰ OK	Interface GigabitEthernet1/1/4	[Up_SAUG01-01.3/0/1], (up), MAC: 58:F3:9C:AD:E0:B4, 0.00 B/s (0%)		+ interface/alias:SAUG01
🔄 ? ✖ ☰ OK	Interface Port-channel1	[Up_SAUG01-01.PO3], (up), MAC: 58:F3:9C:AD:E0:B4, B/s (0%)		+ interface/alias:SAUG01

- ◆ No more 'tabula rasa' needed to update service labels
- ◆ New options in service discovery: update individual or all service labels
- ◆ Improved visualization of service label changes







checkmk



Monitor



Customize



Setup


















Services of host switch-cisco-c3650

Setup > Hosts > Main > SNMP > Properties of host switch-cisco-c3650 > Services of host switch-cisco-c3650

Actions
Host
Settings
Display
Help

ⓘ
Changed services: 4
|
Undecided services: 0
|
Vanished services: 0
|
New host labels: 0
|
Vanished host labels: 0
|
Changed host labels: 0

▼ **Changed services (4)**

	State	Service	Summary	Previously discovered	Newly discovered
   	OK	Interface GigabitEthernet1/0/1	[SAUG01-02.A1(LI)], (up), MAC: 58:F3:9C:AD:E0:81, B/s (0%)	interface/alias:AUG03	 interface/alias:SAUG01
   	OK	Interface GigabitEthernet1/1/1	[Up_SAUG01-01.1/0/7], (up), MAC: 58:F3:9C:AD:E0:B1, 0.00 B/s (0%)		+ interface/alias:SAUG01
   	OK	Interface GigabitEthernet1/1/4	[Up_SAUG01-01.3/0/1], (up), MAC: 58:F3:9C:AD:E0:B4, 0.00 B/s (0%)		+ interface/alias:SAUG01
   	OK	Interface Port-channel1	[Up_SAUG01-01.PO3], (up), MAC: 58:F3:9C:AD:E0:B4, B/s (0%)		+ interface/alias:SAUG01

- ◆ No more 'tabula rasa' needed to update service labels
- ◆ New options in service discovery: update individual or all service labels
- ◆ Improved visualization of service label changes



















Services of host switch-cisco-c3650
Setup > Hosts > Main > SNMP > Properties of host switch-cisco-c3650 > Services of host switch-cisco-c3650

Actions Host Settings Display Help

Changed services: 4 | Undecided services: 0 | Vanished services: 0 | New host labels: 0 | Vanished host labels: 0 | Changed host labels: 0

Changed services (4)

	State	Service	Summary
   	OK	Interface GigabitEthernet1/0/1	[SAUG01-02.A1(LI)], (up), MAC: 58:F3:9C:AD:E0:81, B/s (0%)
   	OK	Interface GigabitEthernet1/1/1	[Up_SAUG01-01.1/0/7], (up), MAC: 58:F3:9C:AD:E0:B1, 0.00 B/s (0%)
   	OK	Interface GigabitEthernet1/1/4	[Up_SAUG01-01.3/0/1], (up), MAC: 58:F3:9C:AD:E0:B4, 0.00 B/s (0%)
   	OK	Interface Port-channel1	[Up_SAUG01-01.PO3], (up), MAC: 58:F3:9C:AD:E0:B4, B/s (0%)

Previously discovered

interface/alias:AUG03

Newly discovered

interface/alias:SAUG01

+ interface/alias:SAUG01

+ interface/alias:SAUG01

+ interface/alias:SAUG01

- No more 'tabula rasa' needed to update service labels
- New options in service discovery: update individual or all service labels
- Improved visualization of service label changes

More service discovery improvements!



More consistency

'Automatically update service configuration' enabled & 'Do not activate changes'
→ Changes now appear in 'Activate pending changes' & audit log

More service discovery improvements!



More consistency

'Automatically update service configuration' enabled & 'Do not activate changes'
→ Changes now appear in 'Activate pending changes' & audit log



Better error messages:

'Rediscovery scheduled' (but rediscovery will not do anything!)
→ 'Automatic rediscovery currently not possible due to failing data source(s).
Please run service discovery manually' ¹⁾

More service discovery improvements!



More consistency

'Automatically update service configuration' enabled & 'Do not activate changes'
→ Changes now appear in 'Activate pending changes' & audit log



Better error messages:

'Rediscovery scheduled' (but rediscovery will not do anything!)
→ 'Automatic rediscovery currently not possible due to failing data source(s).
Please run service discovery manually' ¹⁾



More transparent service discovery: ²⁾

Problems with 1 datasource detected
CRIT [agent]: No cached data available **CRIT**

Problems with 1 datasource detected
CRIT [agent]: Communication failed: timed out **CRIT**

Our focus for Checkmk 2.3



Cloud



Data Center



IoT

Great user experience
for beginners
and experts



Monitor anything



Powerful configuration



Alerts & analytics






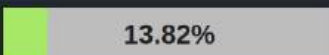





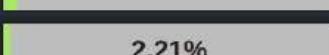
Extensible interfaces
for automation
& development





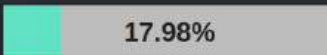







Monitoring platform
Secure & scalable



Top 10: CPU utilization

Host	CPU utilization
server-linux-diskstat-3	 29.43%
localhost	 27.75%
server-linux-veritas-3	 23.19%
server-linux-mysql-3	 13.82%
server-linux-job-3	 12.95%
server-linux-heartbeat-3	 12.91%
server-linux-oracle-3	 7.65%
server-linux-oracle-13	 6.67%
server-linux-web-3	 4.44%
server-linux-13	 2.21%

Bottom 10: Used space %

Host	Service	Used space %
server-linux-docker-3	Filesystem /	 6.84%
server-linux-ipmi-3	Filesystem /	 7.82%
server-linux-multipath-3	Filesystem /	 17.98%
server-linux-heartbeat-3	Filesystem /	 26.26%
server-linux-13	Filesystem /	 26.51%
localhost	Filesystem /	 28.32%
server-linux-multipath-30	Filesystem /	 31.67%
server-linux-job-3	Filesystem /	 34.4%
server-linux-diskstat-3	Filesystem /	 36.14%
server-linux-oracle-3	Filesystem /	 36.69%

Available as easily configurable dashlets






Top lists dashlet

- Rank any metric
- Add to dashboards easily
- Filter via flexible host and service filters
- Find the right metric with helper functions
- Simple configuration
- Quick loading time, even in large environments

Add element: Top list

Monitor > Other > Top consumers > Add element: Top list

Element Display Help   

Context / Search Filters

Host

Service

Properties

Metric CPU utilization

Filter metric selection by host name: (Select hostname)

Filter metric selection by service: (Select service)

Columns Show service description

Show bar visualization

Data range Automatically adjusted to available data

Ranking order Top (highest) N

Limit to 10 entries (max. 50)



Powered by new livestatus functionality

Enable Top lists and much more in the future

New OrderBy header

```
$ lq 'GET hosts\nColumns: name\nOrderBy: name asc'  
ahost  
bhost  
...
```

```
$ lq 'GET hosts\nColumns: name\nOrderBy: name\nLimit: 1'  
ahost
```



Powered by new livestatus functionality

Enable Top lists and much more in the future

New column performance_data

```
OMD[heute]:~$ lq << EOF
> GET services
> Columns: description performance_data
> Filter: description = CPU load
> OutputFormat: python
> EOF
[[ "CPU load", {"load1":0.62,"load5":0.64,"load15":1.13}]]
```

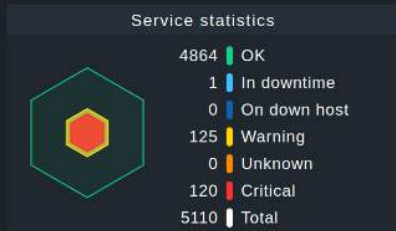
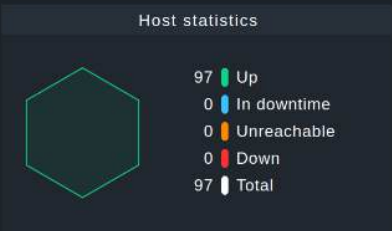


Powered by new livestatus functionality

Enable Top lists and much more in the future

Combination of new column performance_data and OrderBy header

```
$ lq << EOF
GET services
Columns: host_name description performance_data
OrderBy: performance_data.user_time
EOF
...
```



Top 10: CPU utilization

Host	CPU utilization
monitoring.lax.checkmk.com	84.69%
language.lax.linux01.com	32.94%
build.lax.lax.linux01.com	28.97%
plap.checkmk.com	24.4%
lax.checkmk.com	24.26%
www.lax.lax.linux01.com	23.09%
www.lax.lax.linux01.com	22.7%
external.lax.linux01.com	19.59%
lax-010-lax.lax.linux01.com	17.85%
lax.lax.linux01.com	14.36%

Top 10: Memory utilization

Host	RAM used
monitoring.lax.linux01.com	96.6 %
lax.lax.linux01.com	95.77 %
portal.lax.checkmk.net	95.69 %
lax.lax.linux01.com	95.44 %
lax.lax.linux01.com	94.94 %
lax.lax.checkmk.net	94.53 %
training.lax.lax.lax.com	93.3 %
portal.lax.lax.lax.com	93.21 %
lax.lax.com	93.1 %
lax.lax.lax.com	93.08 %

Top 10: Input bandwidth

Host	Service	Input bandwidth
www.lax.lax.linux01.com	Interface bond0	472 Mbit/s
www.lax.lax.linux01.com	Interface enp129s0f2	472 Mbit/s
www.lax.lax.linux01.com	Interface bond0.425	453 Mbit/s
www.lax.lax.linux01.com	Interface vmbr0	452 Mbit/s
www.lax.lax.linux01.com	Interface enp129s0f2	300 Mbit/s

Top 10: Disk utilization

Host	Disk utilization
www.lax.lax.linux01.com	34.51%
www.lax.lax.linux01.com	31.77%
www.lax.lax.linux01.com	29.1%
www.lax.lax.linux01.com	27.71%
www.lax.lax.linux01.com	18.12%
www.lax.lax.linux01.com	12.47%
www.lax.lax.linux01.com	10.64%
www.lax.lax.linux01.com	4.83%
www.lax.lax.linux01.com	4.63%
www.lax.lax.linux01.com	3.66%

Top 10: Output bandwidth

Host	Service	Output bandwidth
www.lax.lax.linux01.com	Interface enp129s0f2	395 Mbit/s
www.lax.lax.linux01.com	Interface bond0	395 Mbit/s
www.lax.lax.linux01.com	Interface enp129s0f2	350 Mbit/s

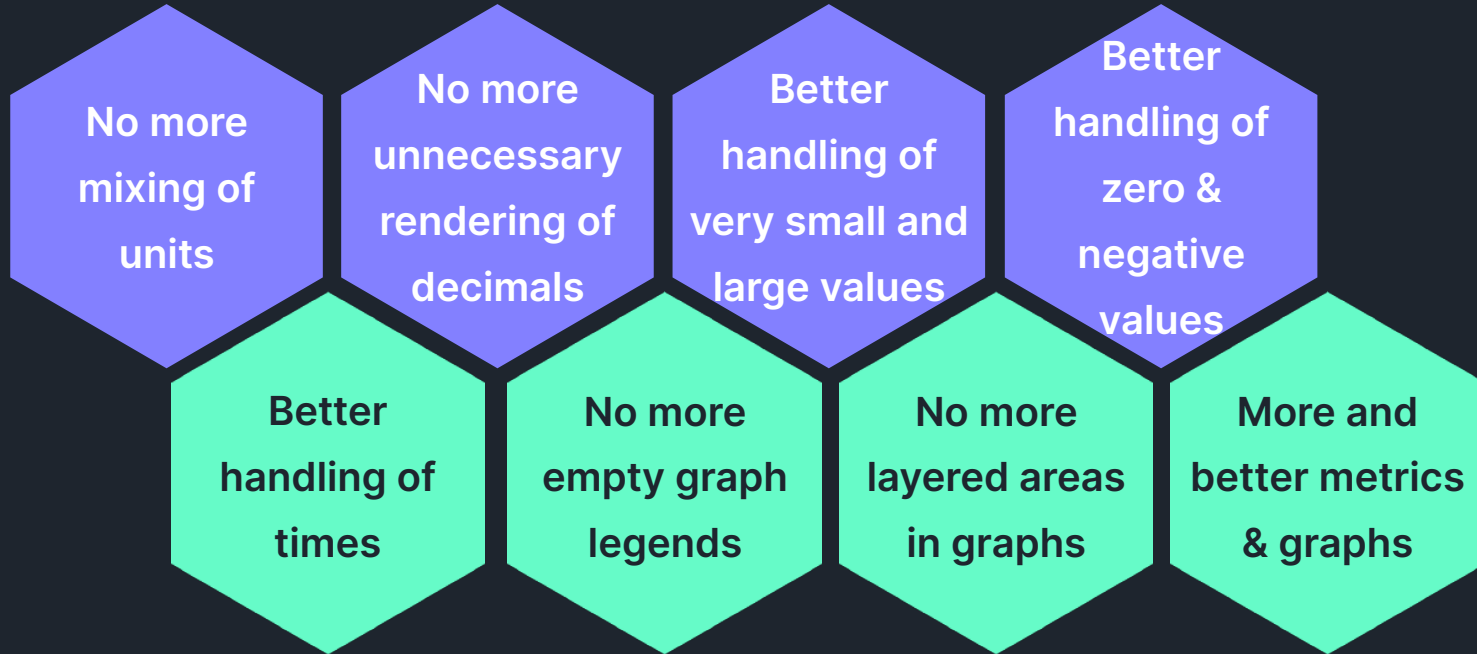
New Linux and Windows overview dashboards

Utilizing Top lists to render quickly in any environment

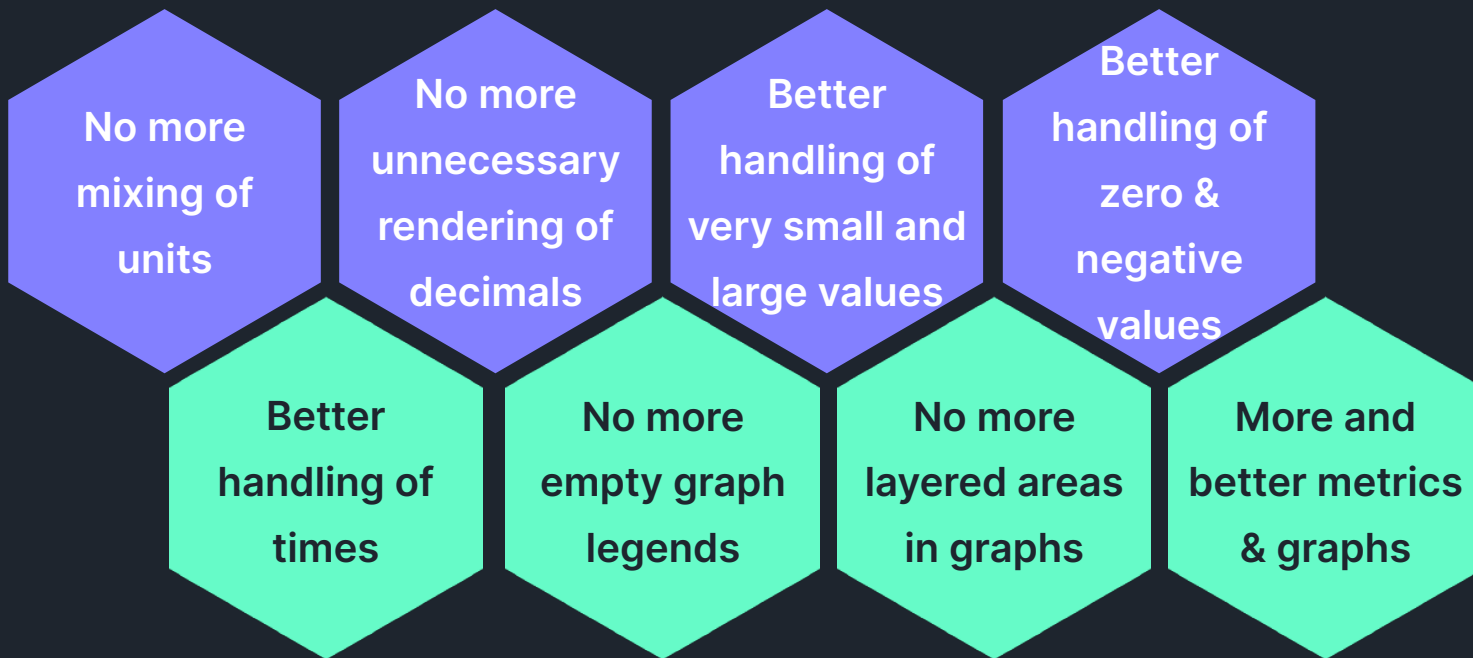


Host	OS	Version	Uptime	CPU	Mem	Net	Disk IO	Uptime	
analytics.lax.checkmk.net	Ubuntu	22.04	5.83 s	5.32%	0.16	4	38.08 %	0.00 B/s / 275.15 KiB/s	40.3 d
monitoring.lax.checkmk.net	Ubuntu	22.04	5.82 s	3.24%	0.17	4	18.59 %	0.00 B/s / 36.67 KiB/s	39.33 d

Quality of Life improvements for graphs



Quality of Life improvements for graphs



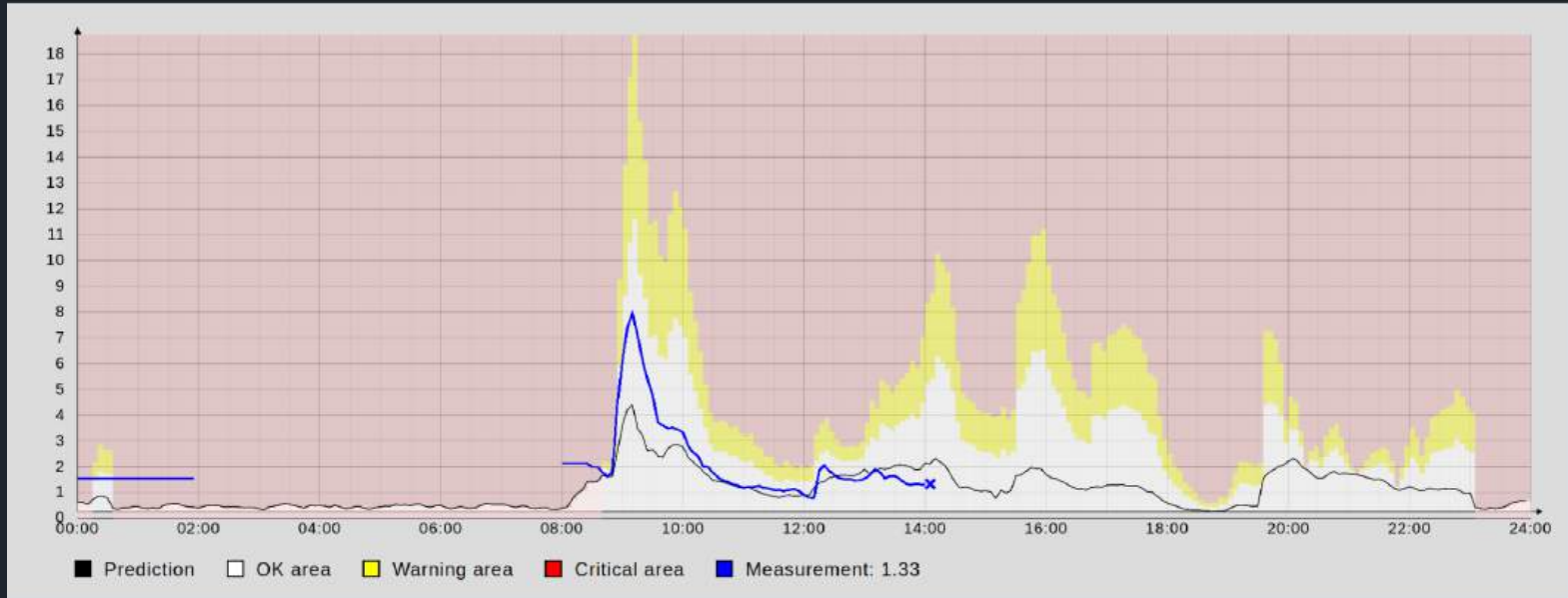
New in 2.3: More developer APIs

16:35 – 17:15 | Moritz Kiemer (Team Lead Development)

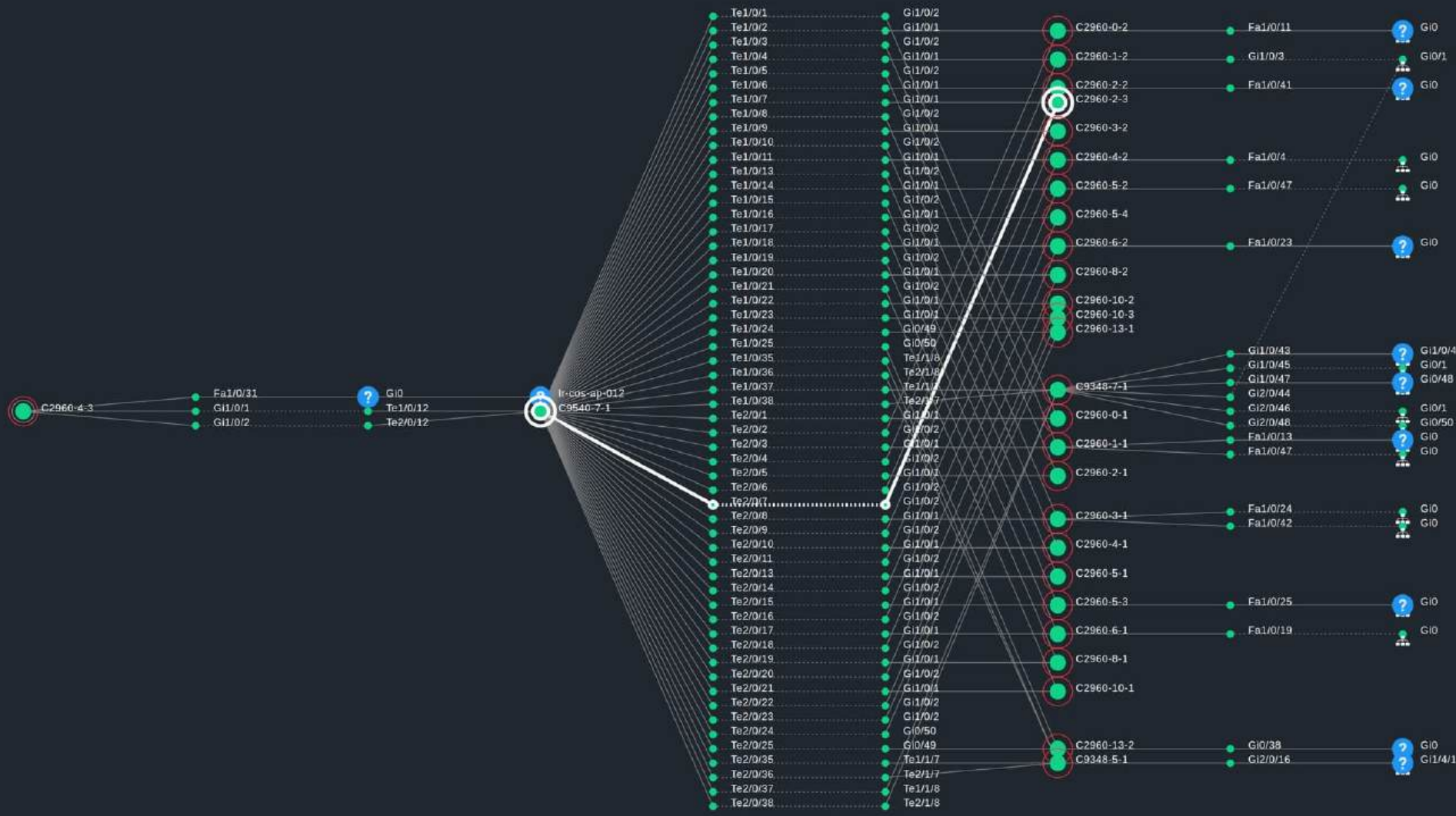
Machine-learning based predictive monitoring



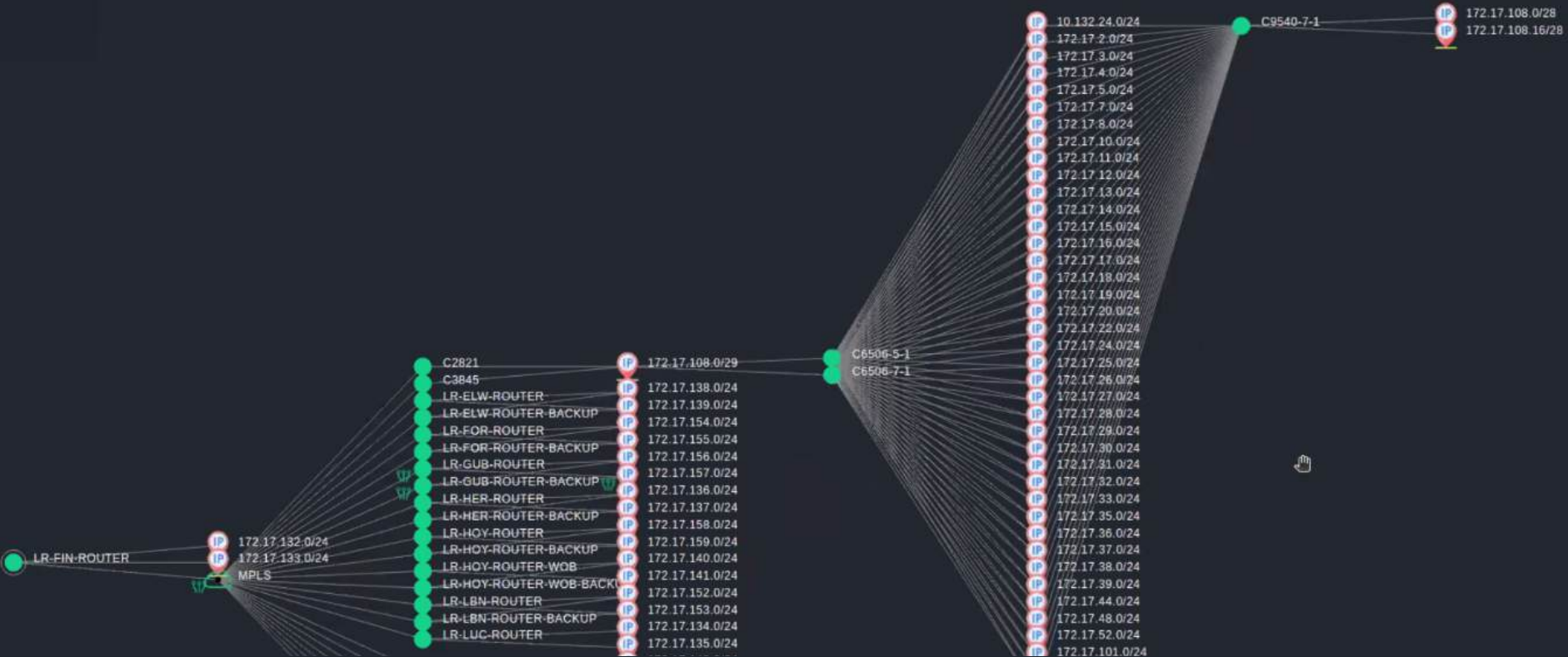
Show prediction for 2024-05-22 (hour of the day) ▾



- ◆ Prediction graphs of remote sites can be viewed on central site
- ◆ Several Quality of Life improvements, e.g. more robust predictions, better UI

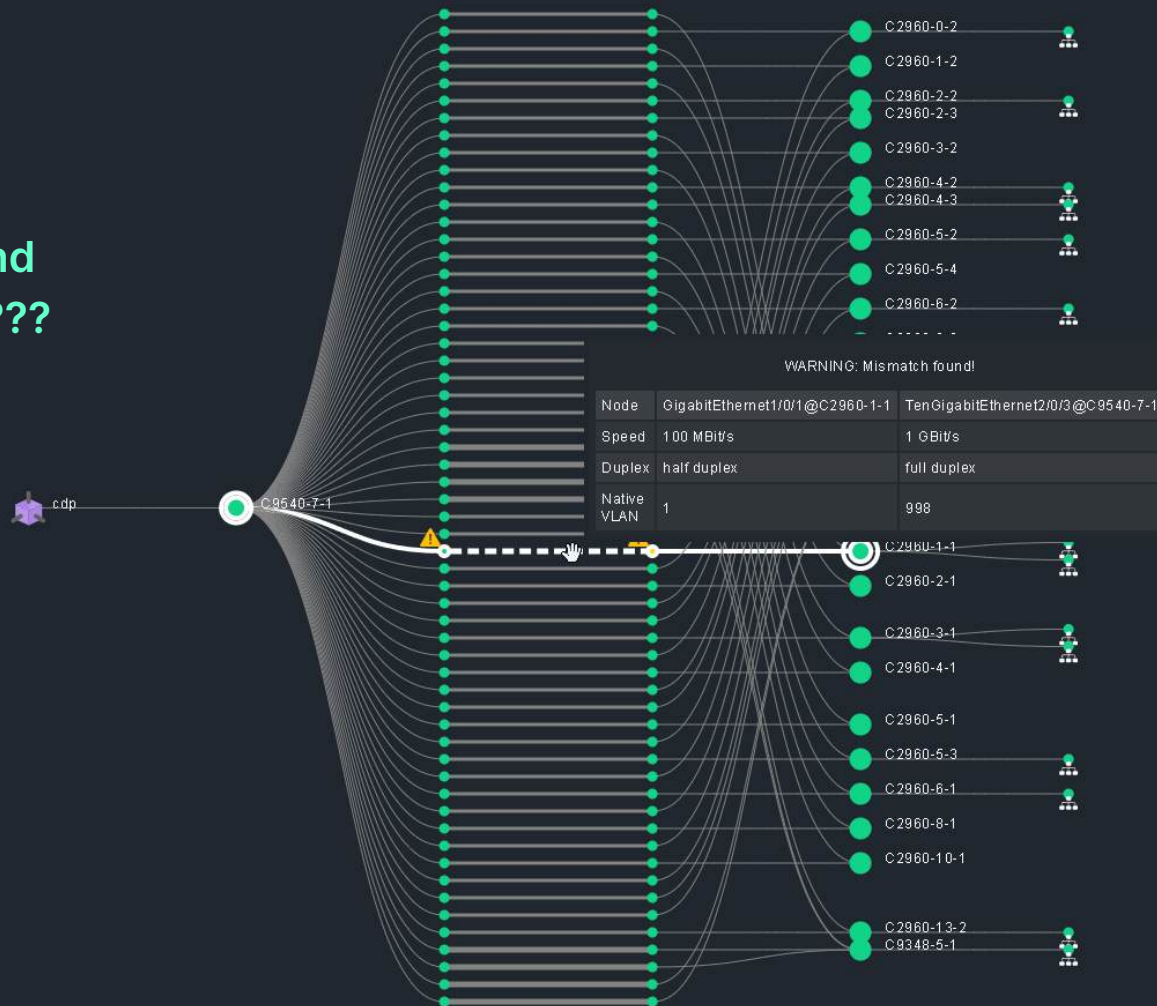


This looks cool...



This looks cool...

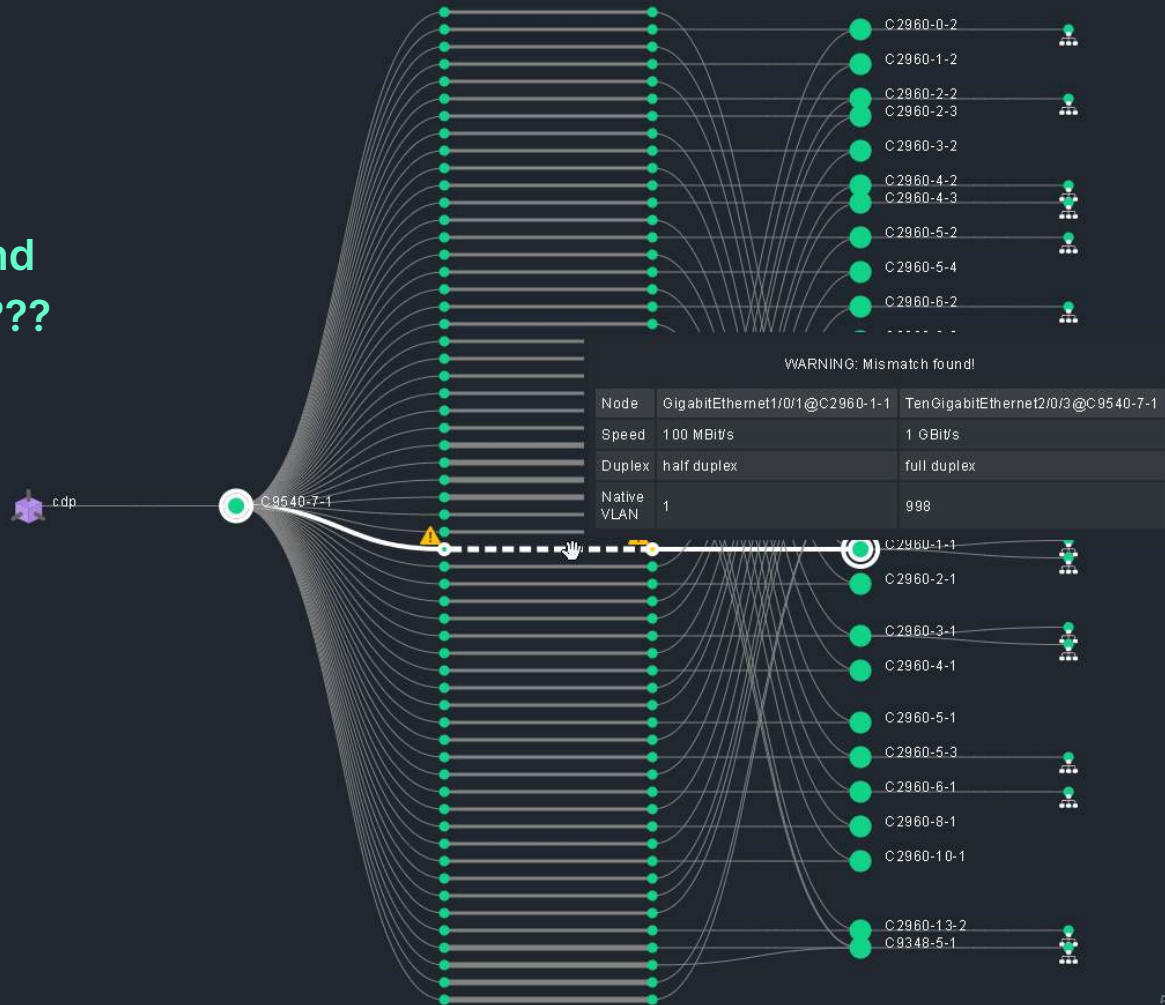
What... Can Checkmk do L2 and L3 network visualization now???



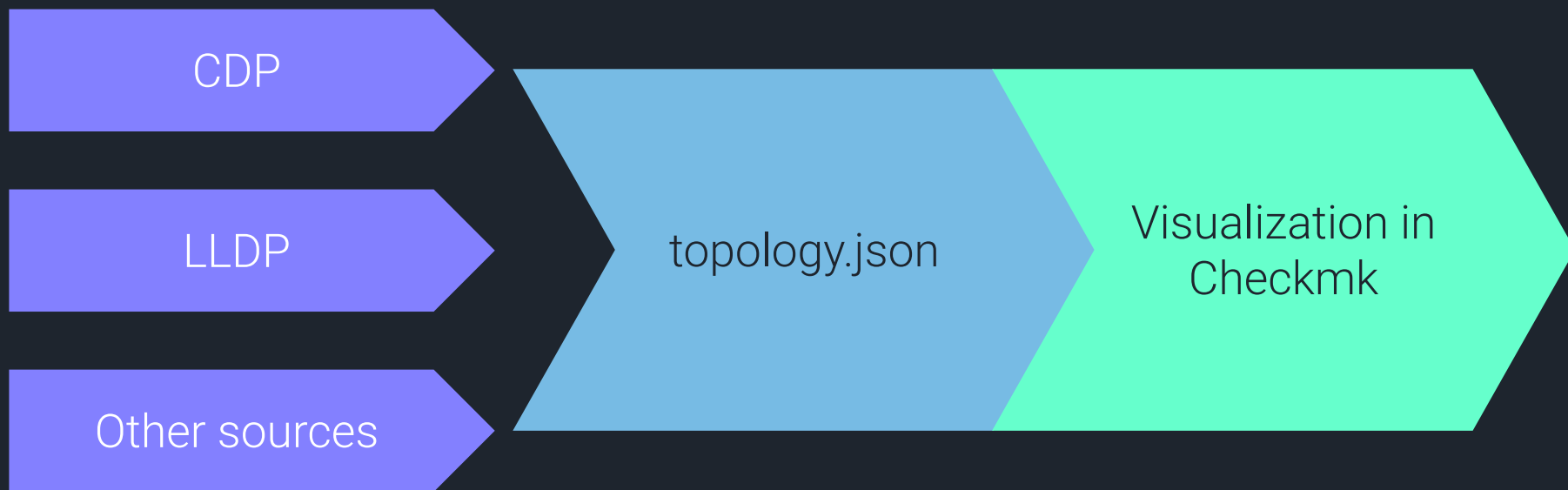
This looks cool...

What... Can Checkmk do L2 and L3 network visualization now???

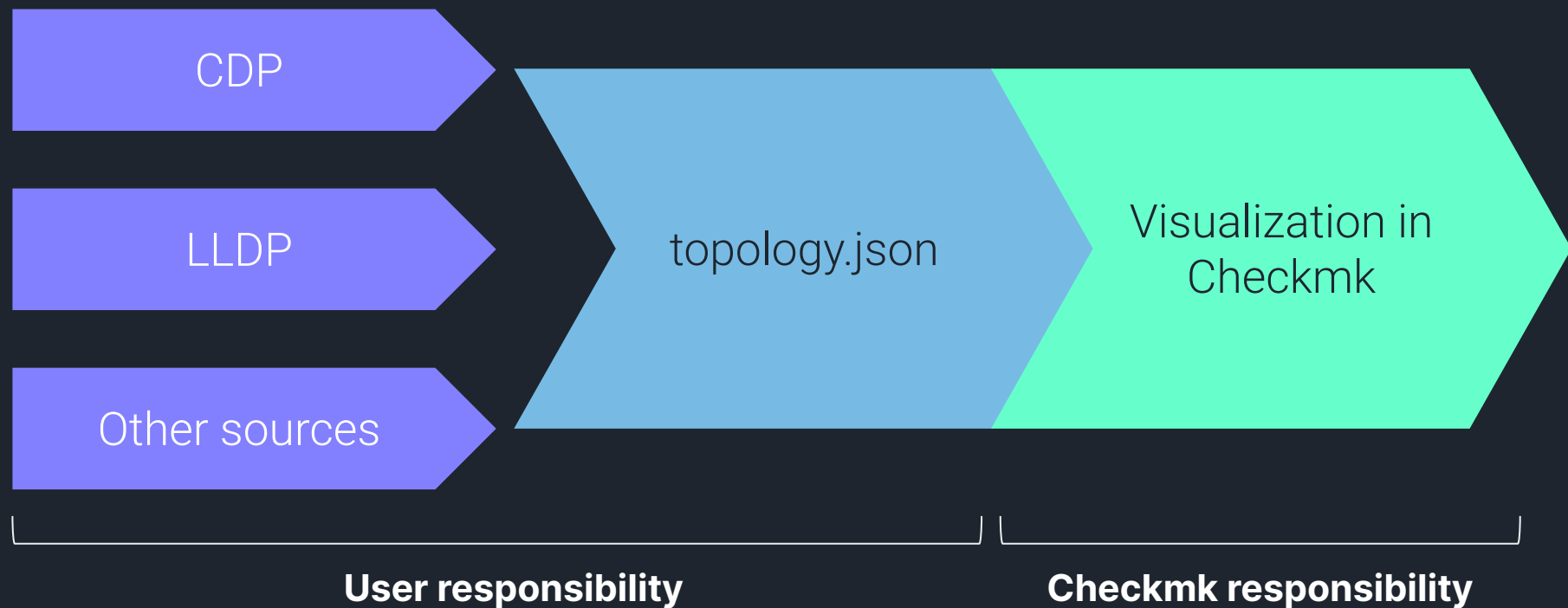
Kind of ...



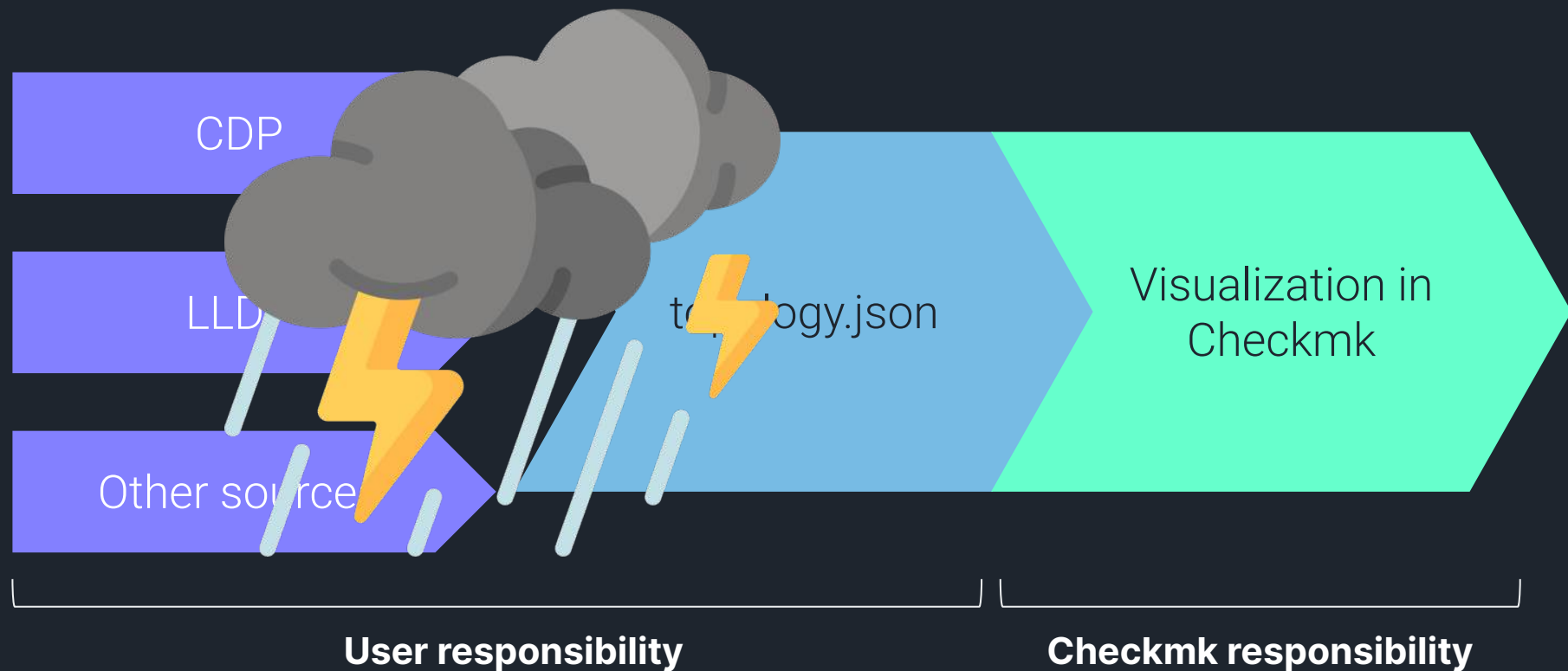
We provide a powerful backend for visualizations



We provide a powerful backend for visualizations



We provide a powerful backend for visualizations



Network Visualization data creation (or how to get the Network Visualization working)

 Checkmk Exchange



thl-cmk Code Contributor

3  Oct 20, 2023

@schnetz wrote in [Network Visualization](#) 



Network Visualization 

Where does the information of the connections come from?

Its up to you to provide this information via a json file - and it will be in the foreseeable future.

and



Network Visualization 

If you can not provide the data mentioned above, the network layer visualization will not work at all.

Maybe there is a solution now. With my network visualization data creation plugin you can create the required network_data.json file from your Checkmk

The solution for data creation

Network Visualization Data Creation Tool by thl-cmk



The solution for data creation

Network Visualization Data Creation Tool by thl-cmk 

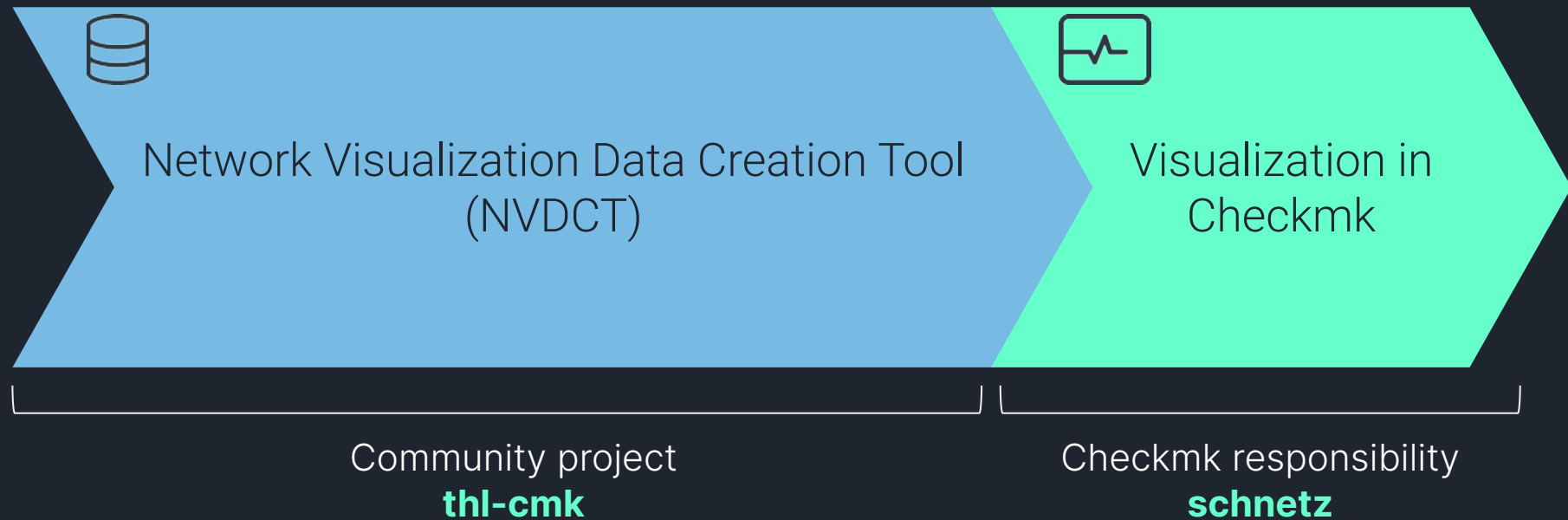


Visualization in
Checkmk

Checkmk responsibility
schnetz

The solution for data creation

Network Visualization Data Creation Tool by **thl-cmk** 



Network Visualization Data Creation Tool

by thl-cmk



Create Layer 2 (CDP/LLDP) topology

Network Visualization Data Creation Tool

by thl-cmk



Create Layer 2 (CDP/LLDP) topology



Create Layer 3 (IPv4) topology

Network Visualization Data Creation Tool

by thl-cmk



Create Layer 2 (CDP/LLDP) topology



Create Layer 3 (IPv4) topology



Highlight connection issues (speed, duplex/half duplex, native VLAN)

Network Visualization Data Creation Tool

by thl-cmk



Create Layer 2 (CDP/LLDP) topology



Create Layer 3 (IPv4) topology



Highlight connection issues (speed, duplex/half duplex, native VLAN)



Custom connections (STATIC) for data that is not in Checkmk

Plugin(s) for data collection

Components of Network Visualization Data Creation Tool by [thl-cmk](#)



Automatic
population of **HW/
SW inventory**
with data

Requires

[CDP cache plugin](#)

[LLDP cache plugin](#)

[IPv4 address plugin](#)

[Interface name plugin](#)

HW/SW inventory

Host labels

Plugin(s) for data collection

Components of Network Visualization Data Creation Tool by thl-cmk



Automatic
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Requires

[CDP cache plugin](#)

[LLDP cache plugin](#)

[IPv4 address plugin](#)

[Interface name plugin](#)

HW/SW inventory

Host labels

Networking

Total interfaces	20
Ports	10
Ports available	8

IP Addresses ▾

Address	Device	Address Type	CIDR	Netmask	Network
169.254.200.200	Tu200	IPv4	24	255.255.255.0	169.254.200.0
169.254.201.200	Tu201	IPv4	24	255.255.255.0	169.254.201.0
169.254.202.200	Tu202	IPv4	24	255.255.255.0	169.254.202.0
172.20.200.254	Gi0.2200	IPv4	24	255.255.255.0	172.20.200.0
172.20.201.254	Gi0.2201	IPv4	24	255.255.255.0	172.20.201.0
172.20.202.254	Gi0.2202	IPv4	24	255.255.255.0	172.20.202.0
192.168.200.240	Fa8	IPv4	24	255.255.255.0	192.168.200.0

Network interfaces ▶

LLDP cache ▾

Local Name	192.168.200.240
Local Id	74:80:4E:71:61

LLDP Neighbours ▾

Neighbour Name	Neighbour Port	Local Port	Neighbour Address	Neighbour ID	Capabilities	Capabilities Supported	Neighbour Port De
CS200254	27	Fa8	192.168.200.254	00:11:22:33:44:A:00	Phone, WLAN AP	Phone, WLAN AP	B3
CS200254	28	Gi0	00:11:22:33:44:A:00	00:11:22:33:44:A:00	Phone, WLAN AP	Phone, WLAN AP	B4

Plugin(s) for network data collection and analysis

Components of Network Visualization Data Creation Tool by thl-cmk



Automatic
population of HW/
SW inventory
with data

Requires

[CDP cache plugin](#)

[LLDP cache plugin](#)

[IPv4 address plugin](#)

[Interface name plugin](#)

HW/SW inventory

Host labels

Plugin(s) for network data collection and analysis

Components of Network Visualization Data Creation Tool by thl-cmk



Automatic
population of **HW/
SW inventory**
with data

Configuration of
network
visualization data
creation tool

Requires

[CDP cache plugin](#)

[LLDP cache plugin](#)

[IPv4 address plugin](#)

[Interface name plugin](#)

HW/SW inventory

Host labels

Modify a copy of

~/local/bin/nvdct/
nvdct.toml

Plugin(s) for network data collection and analysis

Components of Network Visualization Data Creation Tool by [thl-cmk](#)



Automatic
population of **HW/
SW inventory**
with data

Configuration of
network
visualization data
creation tool

**Automatic
analysis of**
network
connections

Requires

[CDP cache plugin](#)
[LLDP cache plugin](#)
[IPv4 address plugin](#)
[Interface name plugin](#)
HW/SW inventory
Host labels

Modify a copy of

~/local/bin/nvdct/
nvdct.toml

Run

~/local/bin/nvdct/
nvdct.py ...

Plugin(s) for network data collection and analysis

Components of Network Visualization Data Creation Tool by thl-cmk



Automatic
population of HW/
SW inventory
with data

Configuration of
network
visualization data
creation tool

Automatic
analysis of
network
connections

Network
visualization

Requires

[CDP cache plugin](#)
[LLDP cache plugin](#)
[IPv4 address plugin](#)
[Interface name plugin](#)
HW/SW inventory
Host labels

Modify a copy of

~/local/bin/nvdct/
nvdct.toml

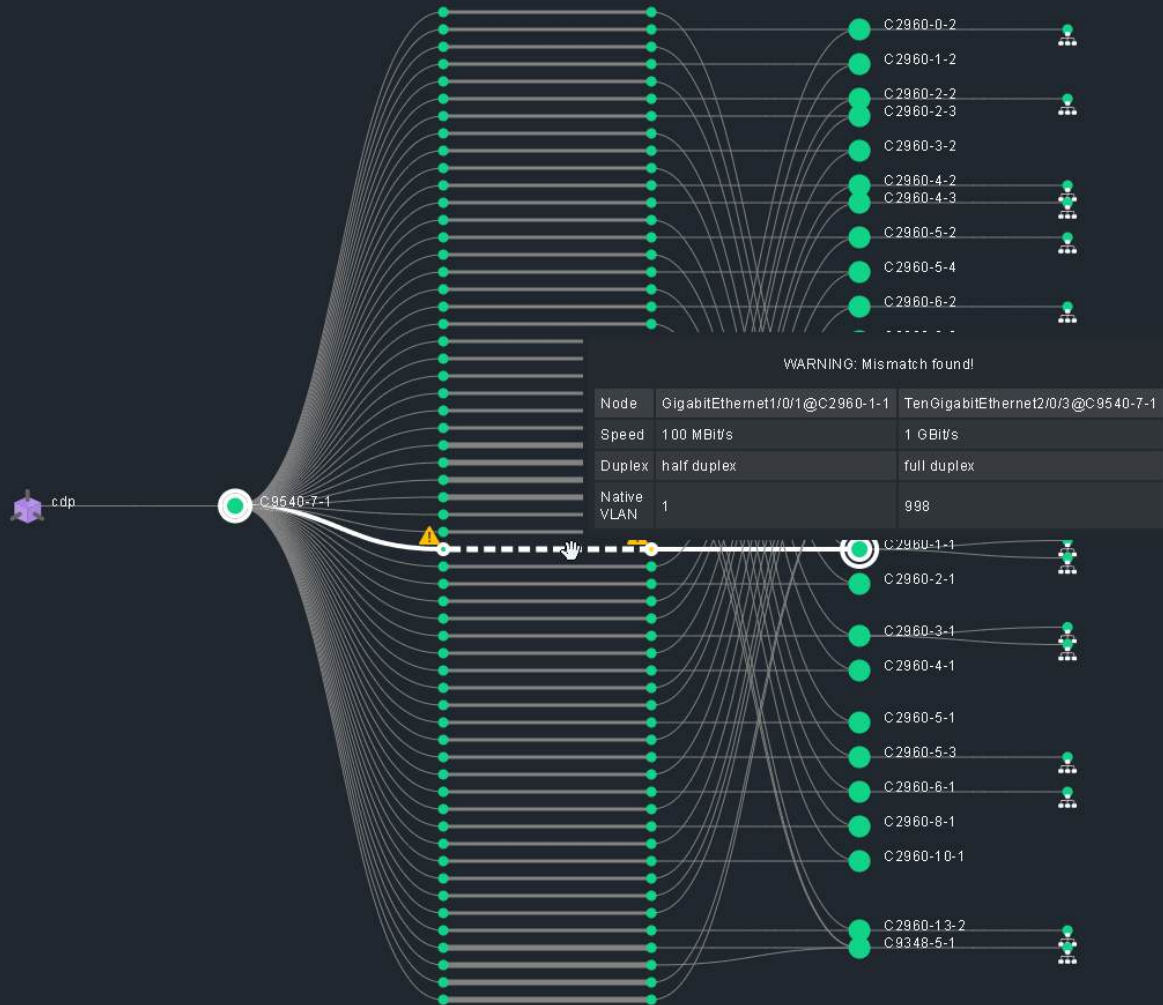
Run

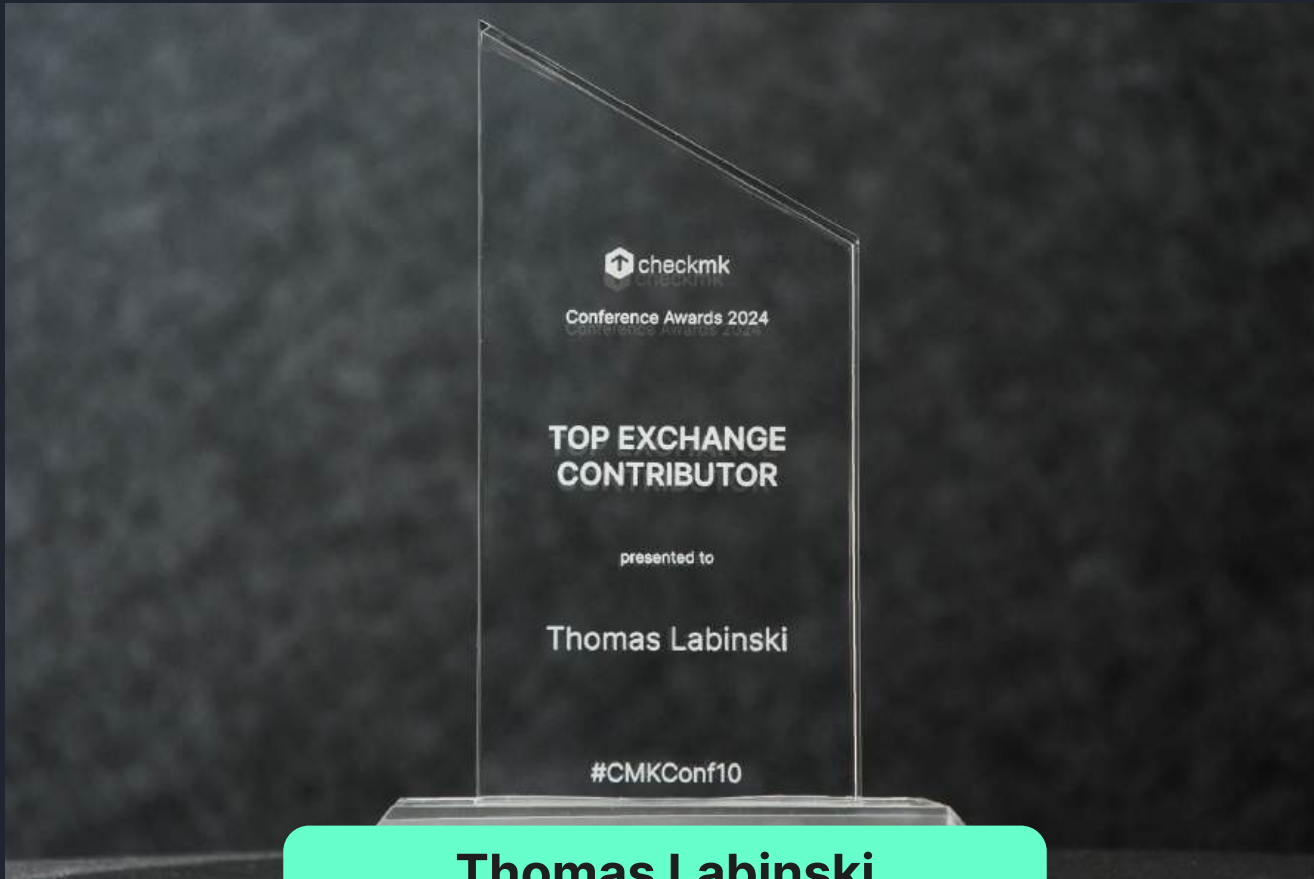
~/local/bin/nvdct/
nvdct.py ...

Accessible via host icon

Network layer topology

Use as basis to further
tune your nvdct.toml
configuration





Thomas Labinski
Top Exchange Contributor

Our focus for Checkmk 2.3



Cloud



Data Center



IoT

Great user experience

for beginners and experts



Monitor anything



Powerful configuration



Alerts & analytics



Extensible interfaces

for automation & development



Monitoring platform

Secure & scalable

Numerous UX improvements in 2.3!



Consistency

Numerous UX improvements in 2.3!



Consistency



Efficiency

Numerous UX improvements in 2.3!



Consistency



Efficiency



**Error
prevention &
recovery**

Numerous UX improvements in 2.3!



Consistency



Efficiency



**Error
prevention &
recovery**



Accessibility

Numerous UX improvements in 2.3!



Consistency



Efficiency



**Error
prevention &
recovery**



Accessibility



New in 2.3: Improved UX

17:15 - 18:00 | Tanja Hohenstatt (UX Designer, Checkmk)

Our focus for Checkmk 2.3



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Data Center



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and experts



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Extensible interfaces

for automation
& development



Monitoring platform
Secure & scalable

All aspects of a monitoring plug-in now covered

New developer APIs



**Special
Agent / Active
Check**

Server-side calls API v1



**Check plug-in &
HW/SW inventory**

Agent-based API v2



**Metrics, Graphs,
Perf-O-Meters**

Graphing API v1



Ruleset

Ruleset API v1

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Agent-based API v2



**Metrics, Graphs,
Perf-O-Meters**

Graphing API v1



Ruleset

Ruleset API v1



New in 2.3: More developer APIs

16:35 - 17:15 | Moritz Kiemer (Team Lead Development, Checkmk)

Extended and reworked REST API



New API endpoints

- Notification rules (5x)
- Dynamic configuration (3x)
- Audit logs (2x)
- Activate changes:
show all pending changes¹⁾
- Downtimes:
modify scheduled downtime
- Rules: modify rule (preserving it)²⁾

Extended and reworked REST API



New API endpoints

- Notification rules (5x)
- Dynamic configuration (3x)
- Audit logs (2x)
- Activate changes:
show all pending changes¹⁾
- Downtimes:
modify scheduled downtime
- Rules: modify rule (preserving it)²⁾

Improvements

- Better handling of custom attributes for users and hosts
- Handling of distributed environments
- Uniqueness of operations
- Edition and version are exposed via HTTP headers²⁾
- Last seen for the REST API usage
- Better documentation



Checkmk goes Ansible

Global Community checkmk-raw, checkmk-enterprise, ansible



robin.gierse Checkmk Consultant

2d

So this one took a while. ⏳

Announcing the Ansible Collection version 5.0.0! 🎉

As you can tell from the version number: This is a breaking release, so let me start by outlining the breaking changes:

- The `lookup_folder` plugin now returns the full folder object, including the title and not only the attributes. To keep the current behavior in your playbooks, you want to use `{{ my_lookup_result.extensions }}` instead of `{{ my_lookup_result }}`. 🔍
- The agent role had an internal variable `checkmk_agent_server_ip` which is now `checkmk_agent_server_ips` and is used differently. It just came to my attention, that users might consider this breaking, so I am mentioning it here.
- Additionally, some changes listed below are quite significant, and although we could not detect any issues, we want to be safe and make you aware to pay heightened attention when rolling out this release. 🚧

 **robin-checkmk** #1
1,766 commits 111,326 ++ 56,146 --



 **lgetwan** #2
394 commits 26,157 ++ 11,966 --



 **msekania** #3
301 commits 10,796 ++ 4,282 --



 **diademiemi** #4
154 commits 3,126 ++ 1,054 --



 **muehlings** #5
119 commits 4,711 ++ 1,954 --



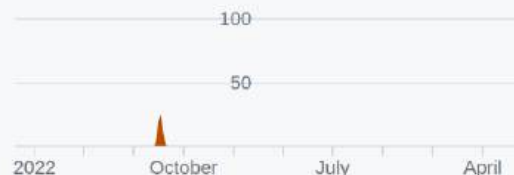
 **Max-checkmk** #6
117 commits 6,225 ++ 2,943 --



 **ogaida** #7
60 commits 2,686 ++ 372 --

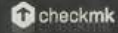


 **mto79** #8
36 commits 254 ++ 190 --



 **godspeed-you** #10
24 commits 655 ++ 583 --





Conference Awards 2024

**TOP CODE CONTRIBUTOR
FOR COMMUNITY PROJECTS**

presented to

msekania

Top Code Contributor
Community Projects
Ansible Collection

Our focus for Checkmk 2.3



Cloud



Data Center



IoT

Great user experience
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and experts



Monitor anything



Powerful configuration



Alerts & analytics



Extensible interfaces
for automation
& development



Monitoring platform
Secure & scalable



Two-Factor Authentication

Authenticator app support + overall better user experience



Two-factor authentication

Enter the six-digit code from your authenticator app to log in.

Two-factor code:

Submit

Security improvements: bits & pieces



Security best
practices

**Default
password policy**

**Improved
symmetric
agent
encryption**

**Security log var/
log/
security.log**

Improved SAML

Effective performance boosts for the UI (I/II)



Before

Faster loading of host / service views

'Add to report / dashboard' reworked

- Before: all reports and dashboards were 'read' for every host/service view
- Higher loading time the more custom reports / dashboards

checkmk

Monitor

Customize

Setup

Services of Host localhost

Monitor > Overview > All hosts > localhost > Services of Host

Commands Host Services Add to Export Display Help

localhost	
State	Service
OK	Check_MK
WARN	Check_MK Agent
OK	Check_MK Discovery
OK	Check_MK HW/SW Invento
OK	CPU load
OK	CPU utilization
OK	Disk IO SUMMARY
OK	File /etc/check_mk/fileinfo.
OK	File /home/martinhirschvogel/te
OK	Filesystem /

Add to dashboard

- Windows hosts
- Main dashboard
- Problem dashboard
- Host & service problems
- Checkmk dashboard
- Site dashboard \$SITE\$
- Kubernetes
- Kubernetes Cluster
- Kubernetes Deployment
- Kubernetes DaemonSet
- Kubernetes Statefulset
- Kubernetes Namespace
- Alerts
- Flows
- Top Talkers
- Single Linux host
- Single Windows host
- Linux hosts

Effective performance boosts for the UI (I/II)



Now

Faster loading of host / service views

'Add to report / dashboard' reworked

- Before: all reports and dashboards were 'read' for every host/service view
 - Higher loading time the more custom reports / dashboards
- Now: only loading on-demand
 - Not as 'cool', but much faster in large setups!

The screenshot shows the Checkmk web interface for monitoring 'Services of Host server-linux-13'. The left sidebar contains navigation options: Monitor, Customize, and Setup. The main content area displays a list of services with their status and details. A dropdown menu titled 'Add to report' is open, showing a list of report templates. The first option, 'BI availability (bi_availability)', is highlighted in green. Other options include 'Default template for all reports (default)', 'Report of host (host)', 'Report of host performance graphs (host_performance_graphs)', 'Template for PDF exporting (instant)', 'Template for PDF exporting of availability views (instant_availability)', 'Template for PDF exporting of graph collections (instant_graph_collections)', and 'Template for PDF exporting of views (instant_views)'. A green 'Add to' button is visible in the top right corner of the dropdown menu.

Command	Host	Services	Export	Display	Help
OK		CPU utilization			Total CPU: 3.17%
CRIT		CUPS Queue Default			disabled since Wed Nov 27 16:12:40 2003 00:41:42 2003 CRIT
CRIT		CUPS Queue jscnews			disabled since Wed Aug 12 10:53:12 2003 00:41:42 2003 CRIT

Effective performance boosts for the UI (II/II)



Faster loading of audit log

'Audit log' reworked

- Audit log rotation for files >300MB
 - Included in update mechanic
- Redesign of audit log page
 - Selector for audit log
 - Option to toggle columns
- Audit logs in large environments can be viewed MUCH faster

The screenshot shows the 'Audit log' page in the Checkmk interface. The breadcrumb path is 'Setup > General > Audit log'. The page has a navigation bar with 'Audit log', 'Related', 'Export', 'Display', and 'Help' tabs. A dropdown menu is open for file selection, showing 'wato_audit.log (current)'. The 'Display' tab is active, showing options to 'Show details', 'Show object type', and 'Show object', all of which are toggled on. There is also a 'Filter view' option and a 'Show page navigation' option. Below the menu, the title is 'Audit log for 2024-05-22'. A note states 'This table is limited to show only...'. The table has columns for 'Time', 'User', and 'Host'. The visible data rows are:

Time	User	Host
2024-05-22 16:17:23	cmkadmin	
2024-05-22 16:17:23	cmkadmin	
2024-05-22 16:17:13	cmkadmin	
2024-05-22 16:17:08	cmkadmin	server-linux-web-3
2024-05-22 16:17:08	cmkadmin	server-linux-veritas-3
2024-05-22 16:17:08	cmkadmin	server-linux-oracle-3
2024-05-22 16:17:08	cmkadmin	server-linux-oracle-

Performance boosts for distributed setups

Activate changes



Very large distributed setups

Improved parallelization

→ More sites can perform activation at same time



Checkmk MSP

Additional caching and improved storage of intermediate results

→ Preparation phase for distributing changes to remote sites faster

Appliance 1.7.0 goes Debian 12



OS upgrade to
Debian
bookworm

Appliance 1.7.0 goes Debian 12



OS upgrade to
Debian
bookworm



New
filesystem:
OverlayFS

Appliance 1.7.0 goes Debian 12



OS upgrade to
Debian
bookworm

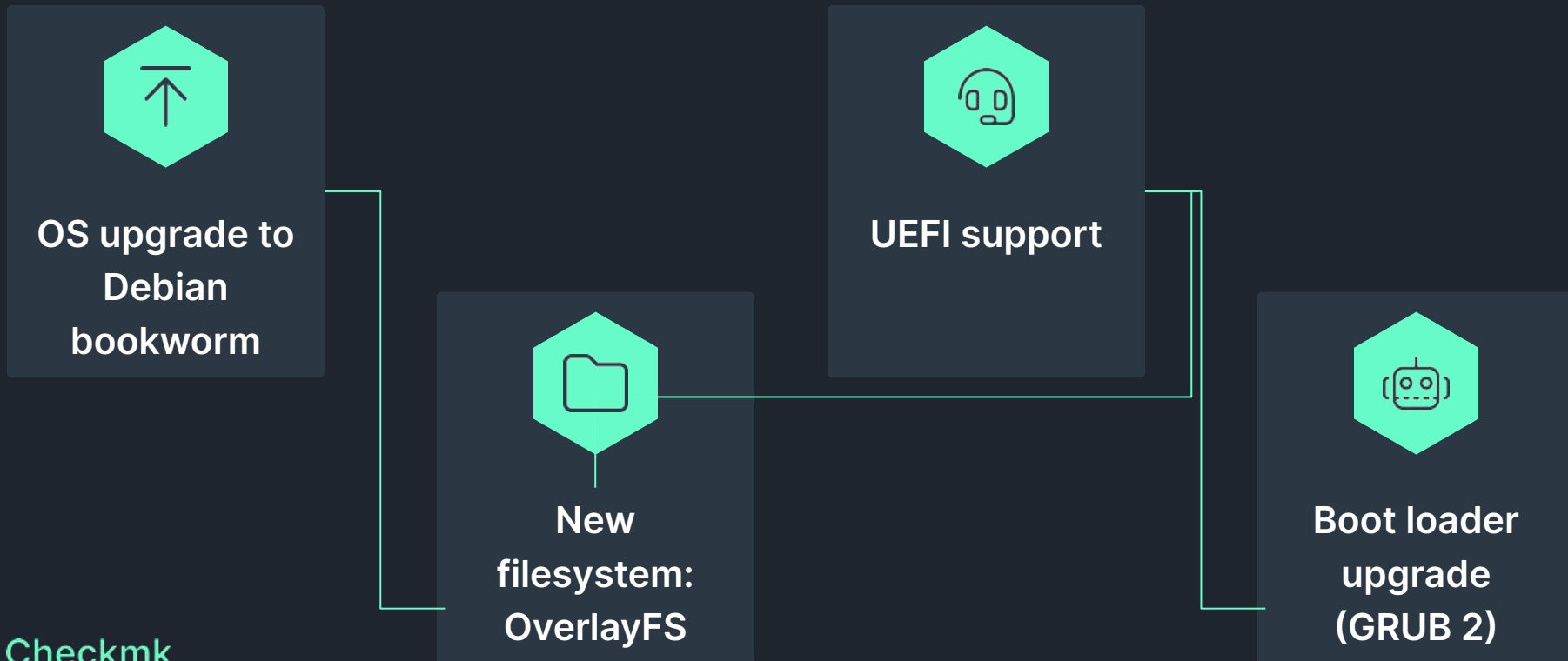


UEFI support



New
filesystem:
OverlayFS

Appliance 1.7.0 goes Debian 12



```
10/26 Rulesets...
+ "Rulesets" failed
Traceback (most recent call last):
  File "/omd/sites/oldstable/lib/python3/cmk/update_config/main.py", line 223, in __call__
    action(self._logger, self.update_state.setdefault(action.name))
  File "/omd/sites/oldstable/lib/python3/cmk/gui/watolib/rulespecs.py", line 878, in _rulespec_val
    parameter_vs = _wrap_valuespec_in_timeperiod_valuespec(self._parameter_valuespec())
    ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
  File "<string>", line 35, in _parameter_valuespec_perfcalc
NameError: name 'ListOf' is not defined
11/26 Autochecks...
12/26 Remove unused host attributes....
13/26 Convert persisted sections...
14/26 Cleanup version specific caches...
15/26 Background jobs...
16/26 Extract remote sites CAs...
17/26 Add a rule_id to each notification rule...
18/26 Change absolute paths in registered hosts symlinks to relative...
19/26 Synchronize automationuser secrets...
20/26 Remove old custom logos...
21/26 Check for incompatible password hashes...
22/26 Update licensing folders or settings...
23/26 Transform spool files...
24/26 Update backup config...
25/26 Event Console: Rewrite active config...
26/26 Update Agent Bakery...
Done (with errors)
ERROR (exit code: 1)
```

Improved pre-flight check for update



- ◆ **Already in 2.2**

Basic pre-flight check,
but during (partially
irreversible) site update

Improved pre-flight check for update

◆ Already in 2.2

Basic pre-flight check,
but during (partially
irreversible) site update

◆ New

Proper pre-flight check
Site updates now only
happen after
'completed verifying
site configuration'

⇒ Reversible abort

```
2024-05-23 12:41:58 - Updating site 'test' from version 2.2.0p25.cee to 2.3.0-2024.05.20.cee
* Installed dir  etc/default
* Installed file etc/default/cmc
* Updated      etc/init.d/cmc
* Updated      etc/init.d/apache
* Updated      etc/init.d/redis
* Installed dir local/lib/python3/cmk_addons
* Installed dir local/lib/python3/cmk/plugins
* Installed dir local/lib/python3/cmk_addons/plugins
* Vanished     etc/cron.d/cmk_discovery
Creating temporary filesystem /omd/sites/test/tmp...OK
ATTENTION
Some steps may take a long time depending on your installation.
Please be patient.

Cleanup precompiled host and folder files
Verifying Checkmk configuration...
01/06 Legacy check plugins...
02/06 Rulesets...
03/06 UI extensions...
04/06 Agent based plugins...
05/06 Autochecks...
06/06 Deprecated .mk configuration of plugins...
Done (success)

Completed verifying site configuration. Your site now has version 2.3.0-2024.05.20.cee.
```

Improved pre-flight check for update

◆ Already in 2.2

Basic pre-flight check,
but during (partially
irreversible) site update

◆ New

Proper pre-flight check
Site updates now only
happen after
'completed verifying
site configuration'

⇒ Reversible abort

```
2024-05-23 13:06:00 - Updating site 'stable' from version 2.3.0-2024.05.20.cee to 2.3.0-2024.05.20.cee
Creating temporary filesystem /omd/sites/stable/tmp...OK
ATTENTION
Some steps may take a long time depending on your installation.
Please be patient.

Cleanup precompiled host and folder files
Verifying Checkmk configuration...
 01/06 Legacy check plugins...
 02/06 Rulesets...
ERROR: Failed to load Ruleset: static_checks:perfcalc. There is likely an error in the implementation.
This is the exception:
Traceback (most recent call last):
  File "/omd/sites/stable/lib/python3/cmkm/update_config/plugins/pre_actions/rulesets.py", line 10, in load_ruleset
    ruleset.valuespec()
  File "/omd/sites/stable/local/share/check_mk/web/plugins/wato/perfcalc.py", line 35, in _load_ruleset
    ('list', ListOf(
              ^^^^^
NameError: name 'ListOf' is not defined
You can abort the update process (A) or continue (c) the update. Abort update? [A/c]
A
Update aborted with Error: broken ruleset.
Your site has not been modified.
The update can be retried after the error has been fixed.
```

Let's go!



Further reading materials

- ◆ Features overview <https://checkmk.com/product/latest-version>
- ◆ 2.3 blog collection <https://checkmk.com/blog/discover-checkmk-23>
- ◆ **1250+** werks in 2.3.0 <https://checkmk.com/werks>
- ◆ Release notes https://docs.checkmk.com/2.3.0/en/release_notes.html
- ◆ Update guide https://docs.checkmk.com/2.3.0/en/update_major.html
- ◆ Forum announcements <https://forum.checkmk.com/c/announcements/>

One more thing



SVA
2.3 Bug Hunter



REWE digital
2.3 Bug Hunter



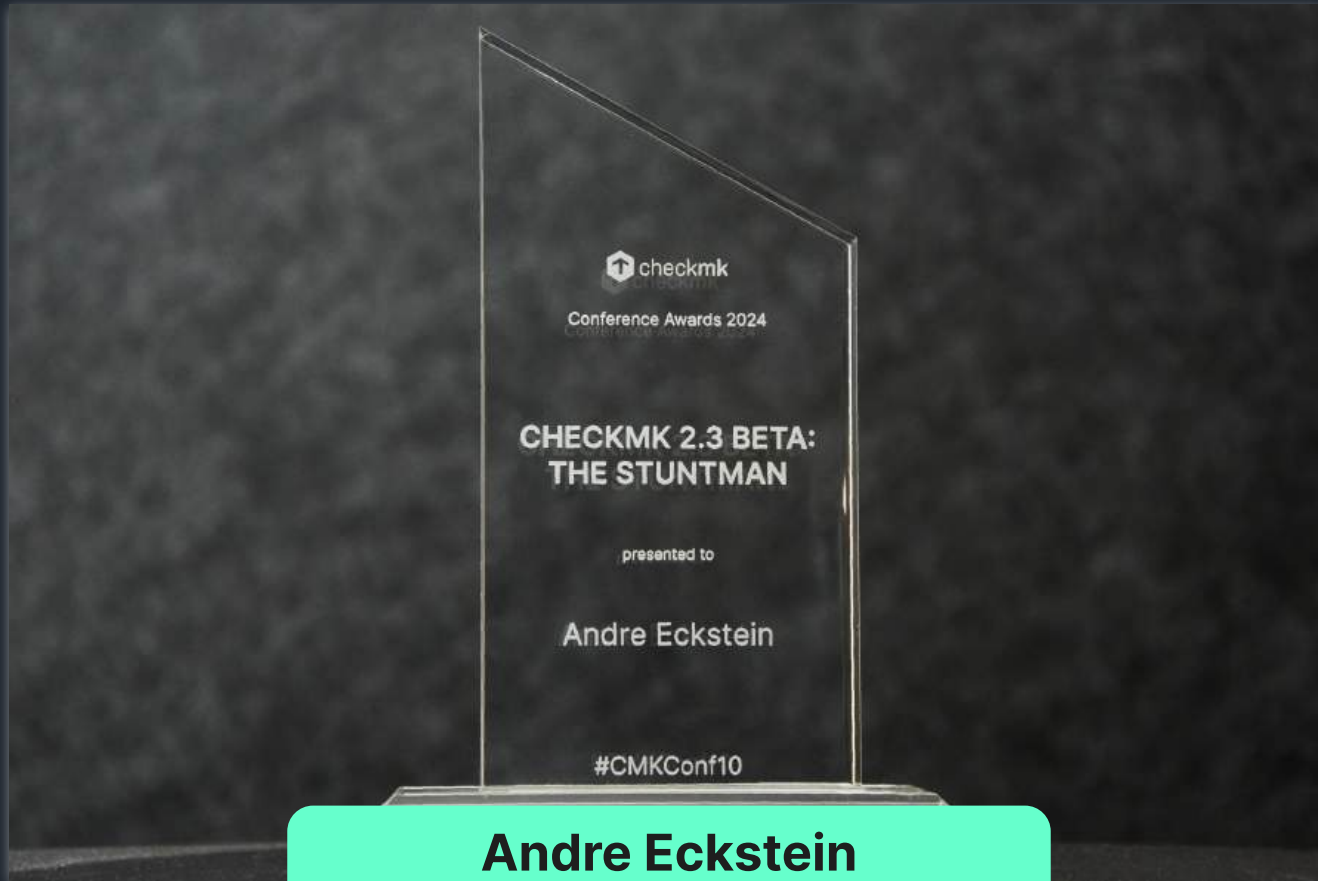
comNET
2.3 Bug Hunter



Markus Hubler
2.3 Lifesaver



Daniel Lapointe
2.3 Marathon Man



Andre Eckstein
Oli-Kahn-Memorial Award

slido



Audience Q&A Session

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Checkmk #10

Conference