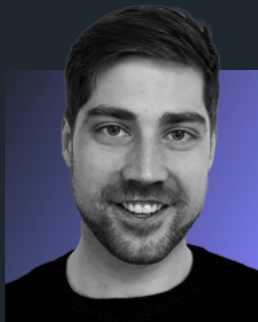
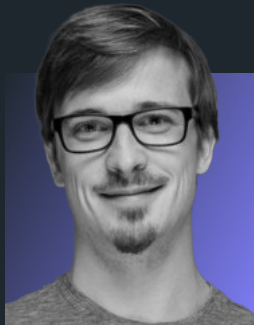




What's next for Checkmk II



Torsten Engler
Engineering Manager
Checkmk GmbH



Lars Michelsen
Chief Technology Officer
Checkmk GmbH

Our principles for Checkmk



Cloud



Data Center



IoT

Great user experience

for beginners and experts



Monitor anything



Powerful configuration



Alerts & analytics



Extensible interfaces

for automation and development

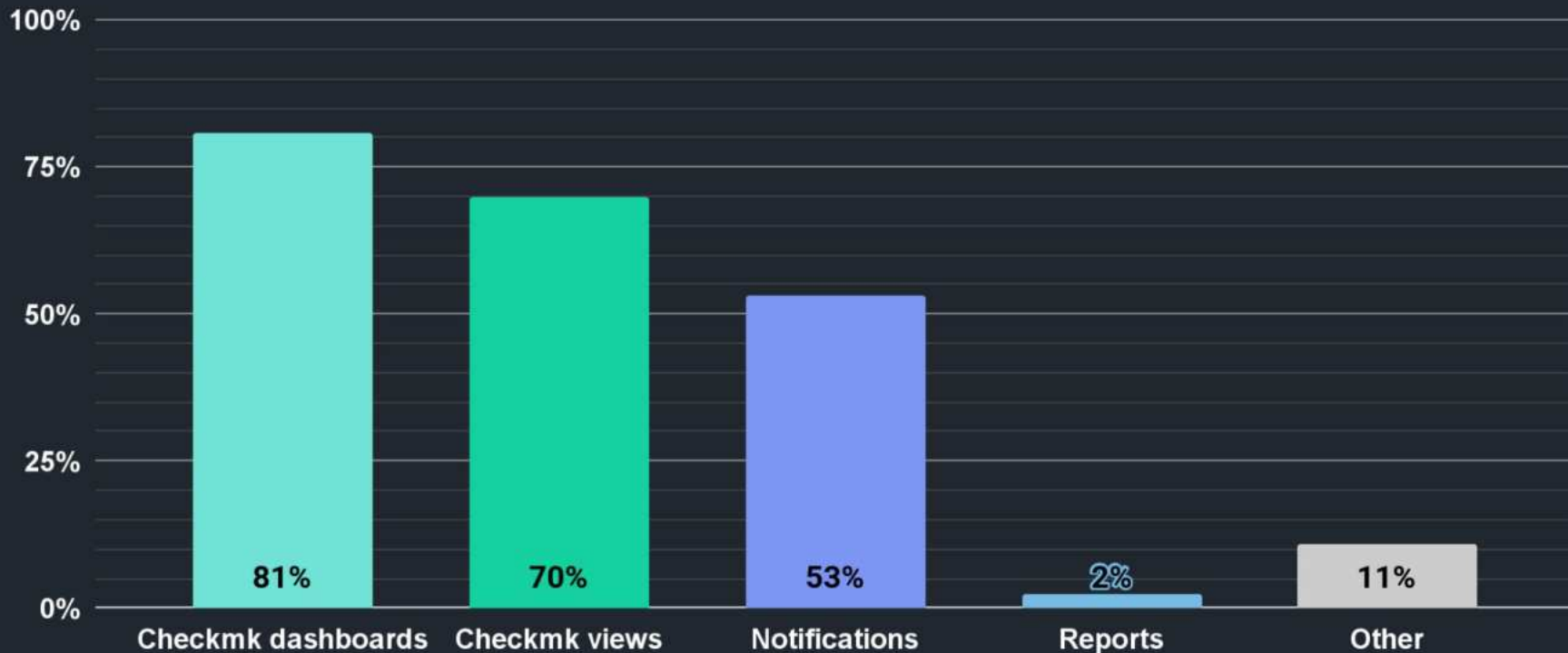


Monitoring platform

Secure & scalable

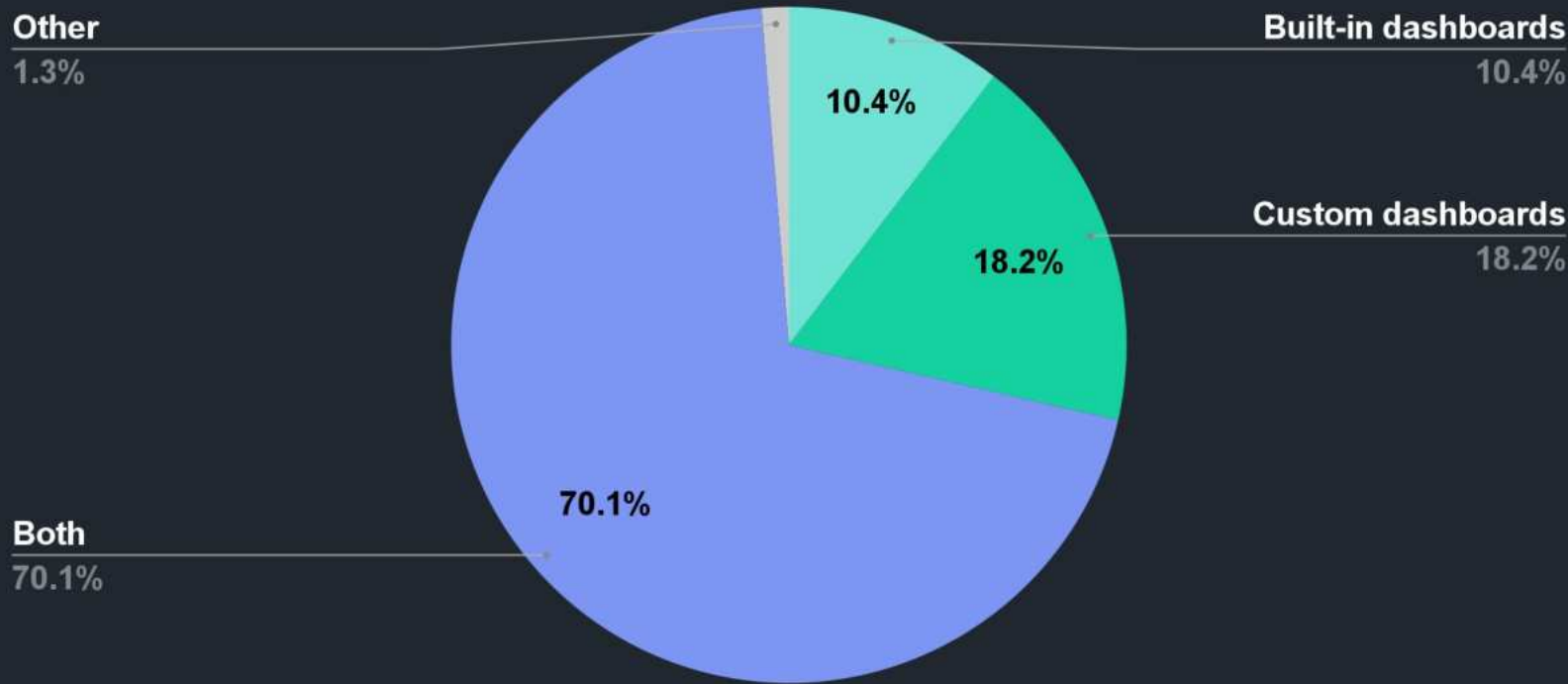
Dashboards are used by many users

How do you get an overview of your infrastructure with Checkmk?



Many users customize dashboards

Are you using built-in or custom dashboards?



Building dashboards can be challenging



How easy or difficult do you find it to create custom dashboards from scratch?



Let's try it.



Create dashboard

Customize > Dashboards > Create dashboard

Dashboard Display Help ^

Continue

Dashboards

Depending on the chosen datasource, a dashboard can list *multiple* or *single* objects. For example, the *services* datasource can be used to simply create a list of *multiple* services, a list of *multiple* services of a *single* host or even a list of services with the same name on *multiple* hosts. When you just want to create a list of objects, simply continue with the default choice (no restrictions). Alternatively, you have the option to restrict to a single host or to choose the type of objects you want to restrict to manually.

Select specific object type

Specific objects No restrictions to specific objects

???



Let's try it.



Create dashboard

Customize > Dashboards > Create dashboard

Dashboard Display Help ^

General properties

show more

Show information of single Not restricted to showing a specific object.
Unique ID (required) dashboard_3
Title* (required)
Topic in 'Monitor' menu Other
Icon ☒ + ☐
Visibility
☐ Hide this dashboard in the monitor menu
☐ Hide this dashboard in drop-down menus
☐ Make this dashboard available for other users

Context / Search Filters

Host
Service

???



> Dashboard properties

Let's try it.



Make dashboards great again

Monitor > Other > Make dashboards great again

Dashboard Add Dashboards Display Help  



Monitor



Customize



Setup



Let's try it.




checkmk


Monitor


Customize


Setup



Make dashboards great again

Monitor > Other > Make dashboards great again

Dashboard

Add

Dashboards

Display

Help





Views

 New view

 Link to existing view

 Copy of existing view

Graphs

 Single metric graph

 Performance graph

 Custom graph

 Combined graph

Metrics

 Average scatterplot

 Barplot

 Gauge

 Single metric

 Top list

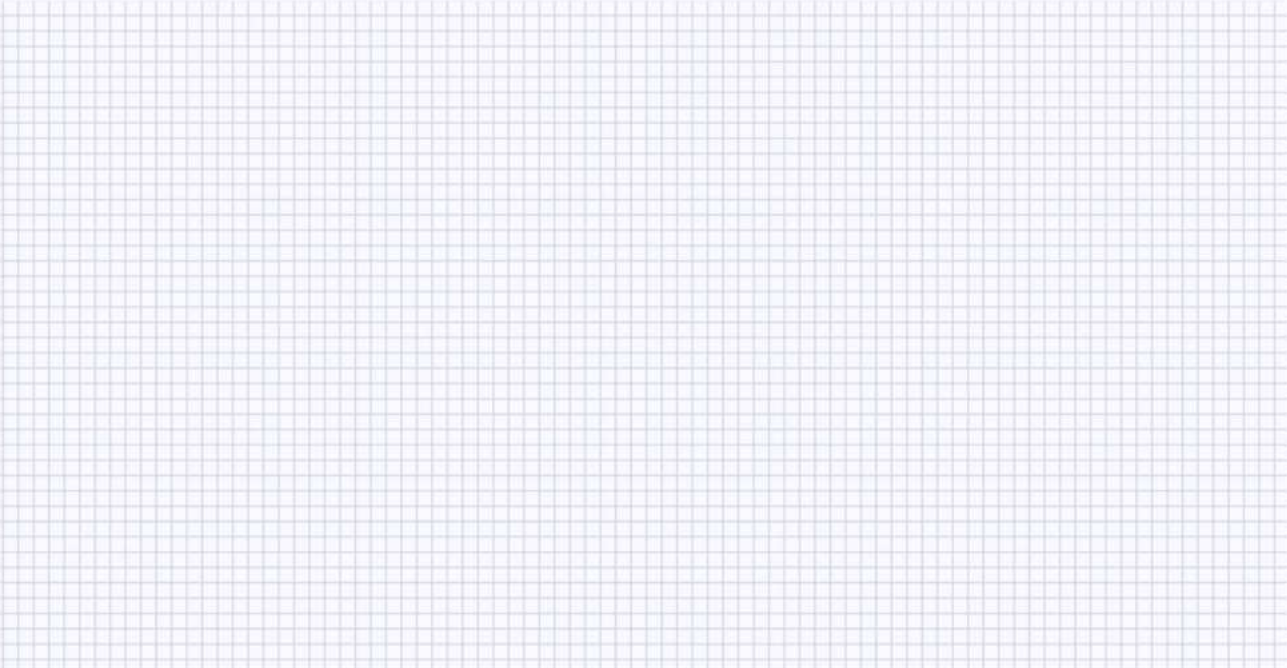
State

 Host state

 Service state

 Host state summary

 Service state summary



Let's try it.




checkmk


Monitor


Customize


Setup



Add element: Timeseries

Monitor > Other > Make dashboards great again > Add element: Timeseries

Element Display Help ^

✓ Save

ⓘ Make dashboards great again

General Settings

Element type

Timeseries

Show information of single

host, service

Colored background

☒ Render background

Show title header

Show header with highlighted background ▼

Custom title*

☐

Link of Title

☐

Context / Search Filters

Host

☐ Host name

Service

☐ Service description

Properties

Metric

(Select metric) ▼

Filter metric selection by host name: (Select hostname) ▼

Filter metric selection by service: (Select service) ▼

Let's try it.




checkmk


Monitor


Customize


Setup



Edit element: Timeseries

Monitor > Other > Make dashboards great again > Edit element: Timeseries

Element Display Help ^

▼ General Settings

Element type Timeseries

Show information of single host, service

Colored background ☒ Render background

Show title header Show header with highlighted background ▼

Custom title* ☐

Link of Title ☐

▼ Context / Search Filters

Host ☒ Host name

localhost x ▼

Service ☒ Service description

CPU utilization x ▼

▼ Properties

Let's try it.



Add element: Timeseries

Monitor > Other > Make dashboards great again > Add element: Timeseries

Element Display Help ^

☒ Save ☐ Make dashboards great again

General Settings

Element type Timeseries
Show information of single host, service
Colored background ☒ Render background
Show title header Show header with highlighted background ▾
Custom title* ☐
Link of Title ☐

Context / Search Filters

Host
Service

Properties

Metric

CPU utilization

I/O-wait

System

User

(Select metric)

Filter metric selection by host name: localhost x ▾

Filter metric selection by service: CPU utilization x ▾

Let's try it. It's not so bad. Right?



Make dashboards great again

Monitor > Other > Make dashboards great again

Dashboard Add Dashboards Display Help  



Monitor



Customize



Setup



CPU utilization



Let's build a proper dashboard ... without a filter



Edit element: Timeseries

Monitor > Other > If you would know > Edit element: Timeseries

Element Display Help ^

☒ Save ☐ If you would know

General Settings

Element type Timeseries
Show information of single host, service
Colored background ☒ Render background
Show title header Show header with highlighted background ▾
Custom title * ☒ `$HOST_NAMES$ > $SERVICE_DESCRIPTIONS$ > $METRIC_NAMES$`
Link of Title ☐

Context / Search Filters

Host ☒ Host name
localhost x ▾
Service Service description

Properties

Metric CPU utilization x ▾

Filter metric selection by host name: localhost

Filters. What filters?



If you would know

Monitor > Other > If you would know

Dashboard Add Dashboards Display Help



Filter context missing

<div class="warning">Unable to render this element, because we miss some required context information (service). Please update the form on the right to make this element render.</div>

Filter context missing

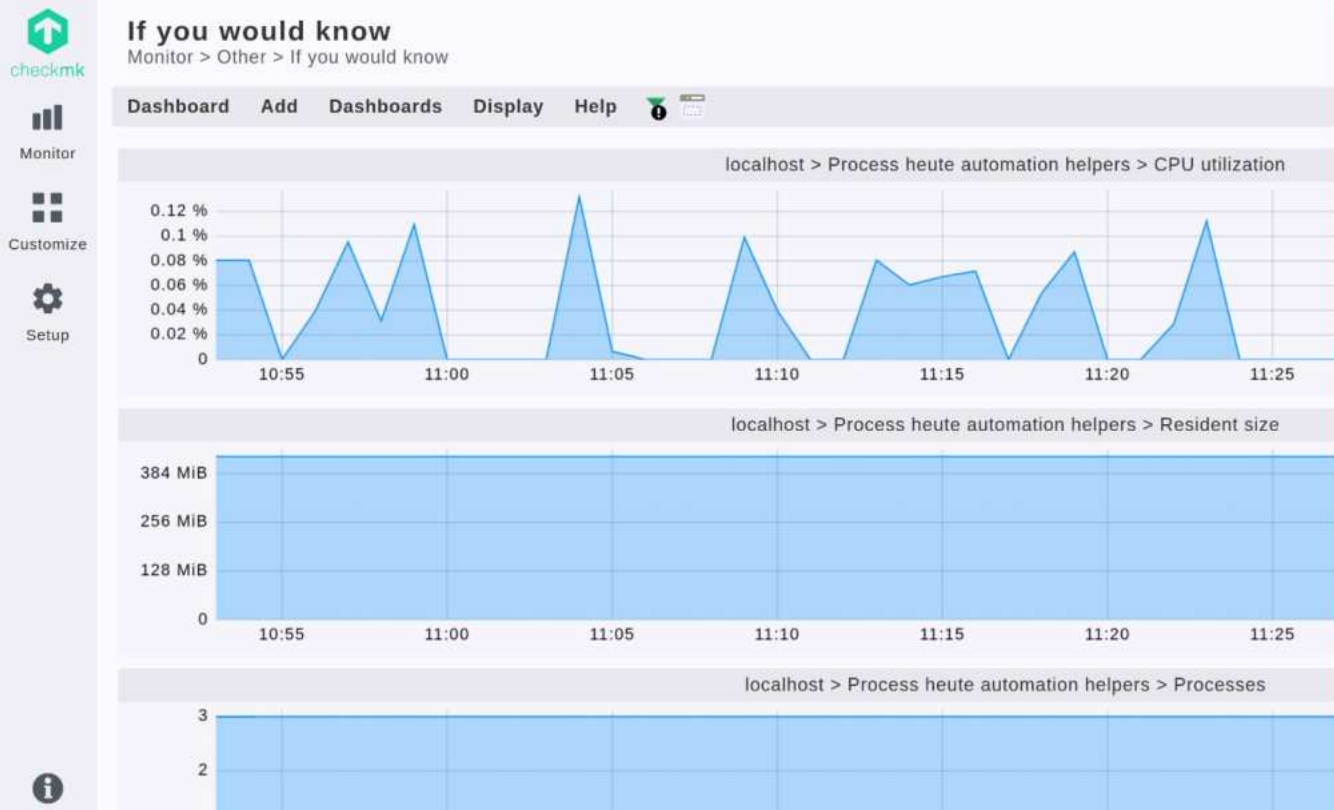
<div class="warning">Unable to render this element, because we miss some required context information (service). Please update the form on the right to make this element render.</div>

Filter context missing

<div class="warning">Unable to render this element, because we miss some required context information (service). Please update the form on the right to make this element render.</div>



Filters. Are. Powerful.



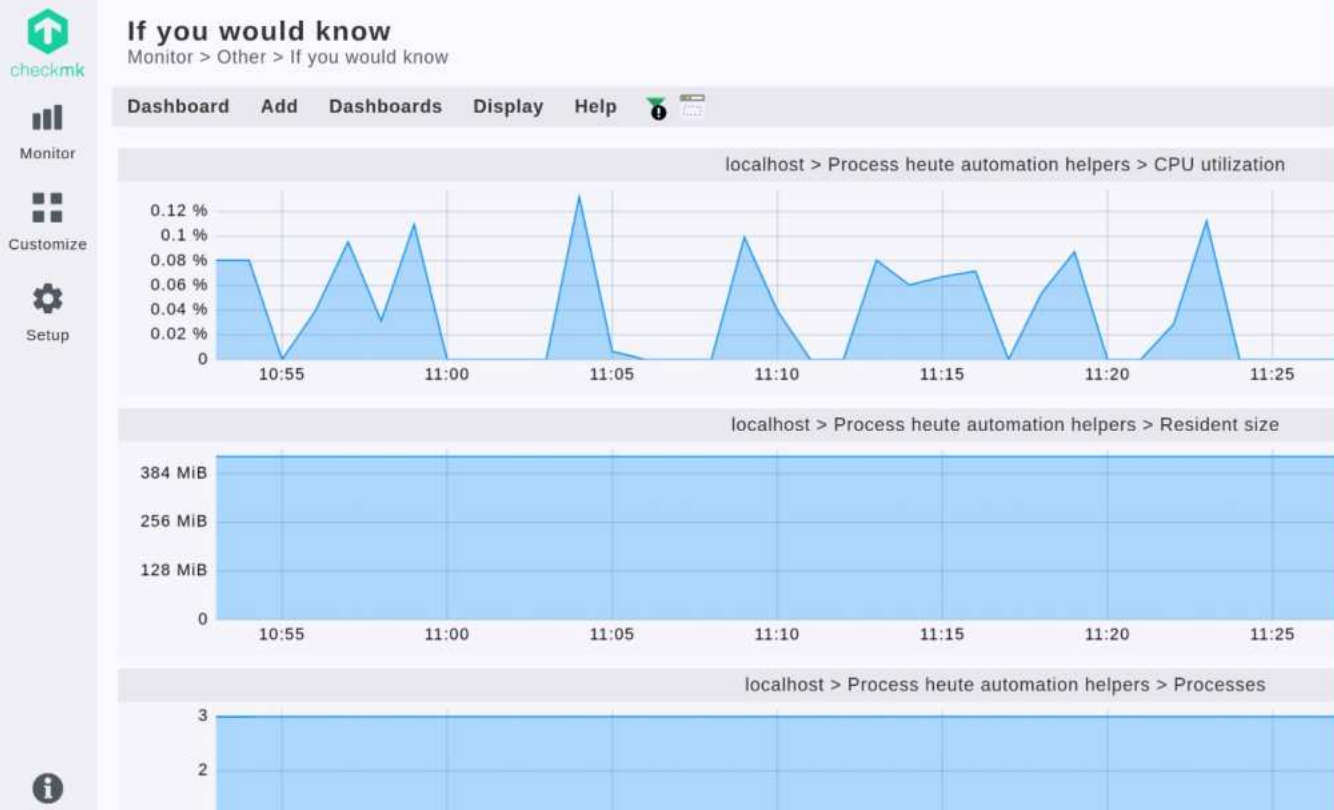
Filter X

+ Add filter **Apply filters** Reset

Service (exact match) X

Process heute automation helpers x v

Filters. Are. Powerful.



Filter

+ Add filter **Apply filters** Reset

Service (exact match)

Process heute automation helpers x

- process
- Process heute agent receiver
- Process heute alert helper
- Process heute apache
- Process heute automation helpers
- Process heute checker helpers
- Process heute cmc**
- Process heute dcd
- Process heute event console

Filters. Are. Powerful.



If you would know

Monitor > Other > If you would know

Dashboard Add Dashboards Display Help



Monitor



Customize

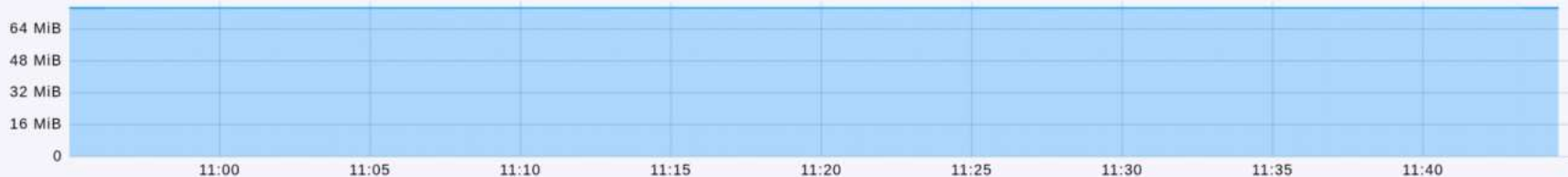


Setup

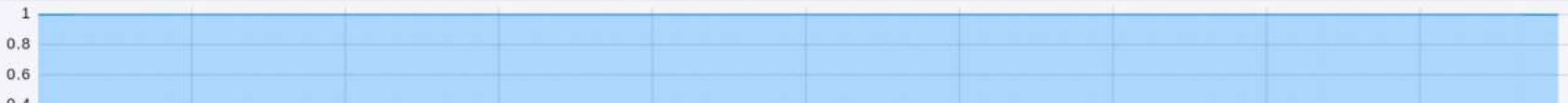
localhost > Process heute cmc > CPU utilization



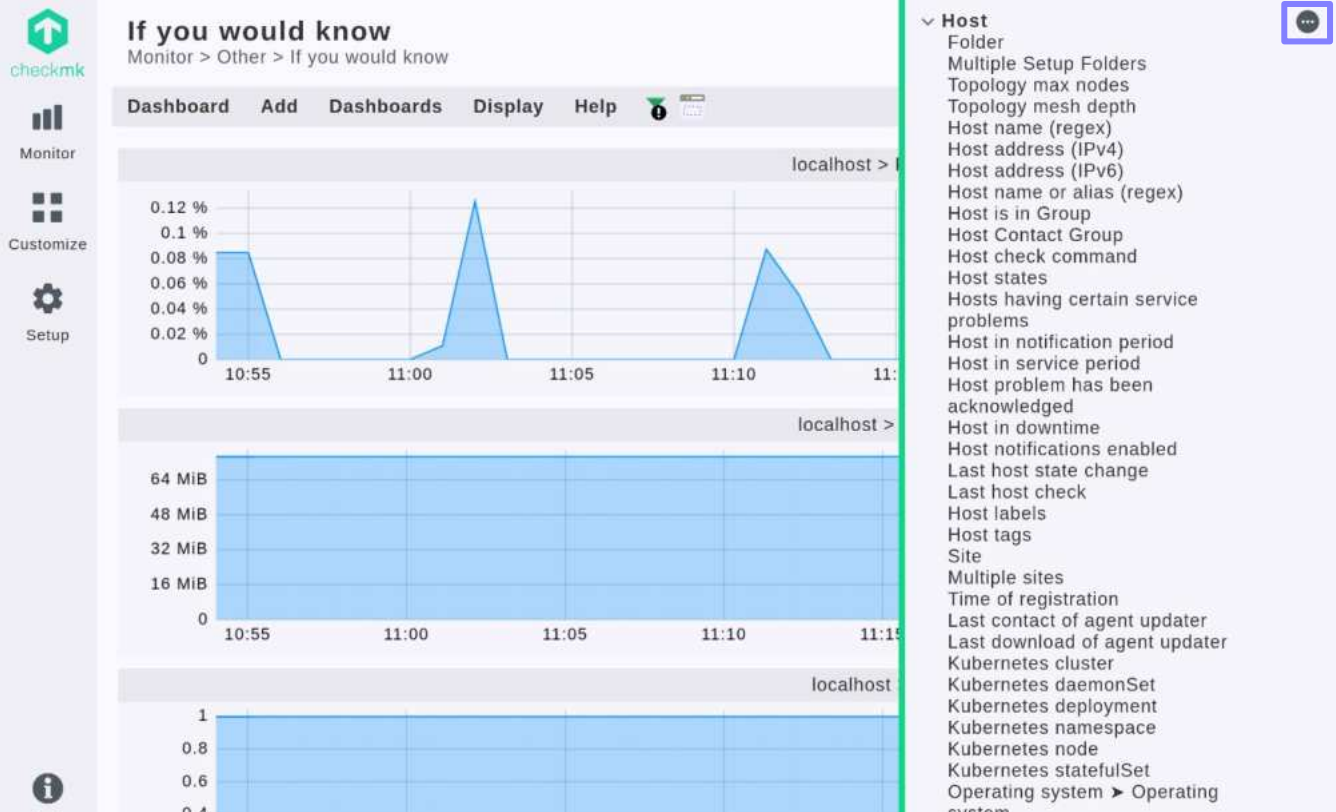
localhost > Process heute cmc > Resident size



localhost > Process heute cmc > Processes



Filters. Are. Powerful. Hidden. Complex.



Filter

+ Add filter Apply filters Reset

Service (exact match)

Process heute cmc x

Easier dashboard creation

Areas we plan to improve

Dashboard

- Dashboard properties
- Context / Search filters

Dashlets / Graphs

- Dashlet / graph selection
- Metric / graph selection
- Moving / selecting / sizing dashlets
- Dashlet / graph preview mode

+ Guided process for dashboard creation



checkmk



Monitor



Customize



Setup

Alert Statistics

Monitor > Problems > Alert Statistics

[Commands](#) [Export](#) [Display](#) [Help](#)

Host Status = Down, Unreachable X

Service Status = Warning, Critical X

Host State = Pending X

Filter

X	Host	Service	Problems	CRIT	UNKN	WARN
☐	printer-1.company.com	Supply Tintenaufrageinheit HP B5L09A	12241	6696	0	5545
☐	hp.ilo4.company.com	Temperature 1 (ambient)	8084	4871	0	3213
☐	aws-web	AWS/Lambda mysteryBox [eu-central-1] Performance	1165	1165	0	0
☐	exchange-1.company.com	System Time	1419	572	0	847
☐	vcenter.company.com	System Time	1224	499	0	725
☐	exchange-2.company.com	System Time	268	147	0	121
☐	exchange.company.com	System Time	258	133	0	125
☐	play.checkmk.com	APT Updates	21	11	0	10
☐	webserver.company.com	APT Updates	10	5	0	5
☐	15.0.3.186-eu-central-1-i-04998884db9ab59be	AWS/EBS Health vol-01fa98caeda2e1a5f	5	5	0	0
☐	aws-web	AWS/Lambda aws-controlltower-NotificationForwarder [eu-central-1] Performance	5	5	0	0
☐			3	2	0	1
☐			2	2	0	0
☐			2	2	0	0
☐	play.checkmk.com	Check_MK	5	1	0	4

Filters reimaged

Design concept I



Help



Alert Statistics

Monitor > Problems > Alert Statistics

Commands Add to Export Display Help

View: My custom set of filters Search

klapp-0370	Temperature Zone 7	453	141	0	312
klapp-0370	Systemd Timesyncd Time	33	27	0	6
klapp-0370	Interface 3	26	26	0	0
klapp-0370	OMD home performance	27	23	0	4
klapp-0370	Interface 2	23	23	0	0
klapp-0370	OMD home status	23	23	0	0
klapp-0370	Memory	145	20	0	125
CO2AMPEL-DD-59	Check_MK	21	20	0	1
CO2AMPEL-DD-59	CO2 board temp	34	15	0	19
klapp-0370	OMD heute Notification Spooler	11	11	0	0
DESKTOP-325EBNS	Check_MK	11	10	0	1
CO2AMPEL-DD-59	Check_MK Discovery	6	6	0	0
klapp-0370	Check_MK	5	5	0	0
ux-tanja.notion.site	PING	8	4	0	4

Add filter

Search filter

4 of 87 selected

Expand all Collapse all

Log Entry

- > Log filter (0 of 7)
 - Logentry class
 - Notification phase
 - Time of log entry
 - Type of alerts of hosts and services

Host

- > Checkmk Agent (0 of 9)
- > Cluster (0 of 2)
- > DaemonSet (0 of 3)
- > Deployment (0 of 3)
- > Docker (0 of 9)
- > Folder (0 of 2)
- ✓ Fritz (1 of 8)
- ✓ Host filter (3 of 18)
- Host address (IPv4)
- Host address (IPv6)
- Host address (Primary)
- Host check command
- ✓ Host contact
- ✓ Host in downtime
- Host is stale
- ✓ Host labels
- Host needs agent update

Added Filters

✓ Fritz

Auto-disconnect time

Lorem ipsum

✓ Host filter

Host labels

Label is cmk/aws/ec2:instance

and Select label

+ Add to query

Host contact

Lorem ipsum

Host in downtime

☐ Yes ☒ No ☐ Ignore

Save view

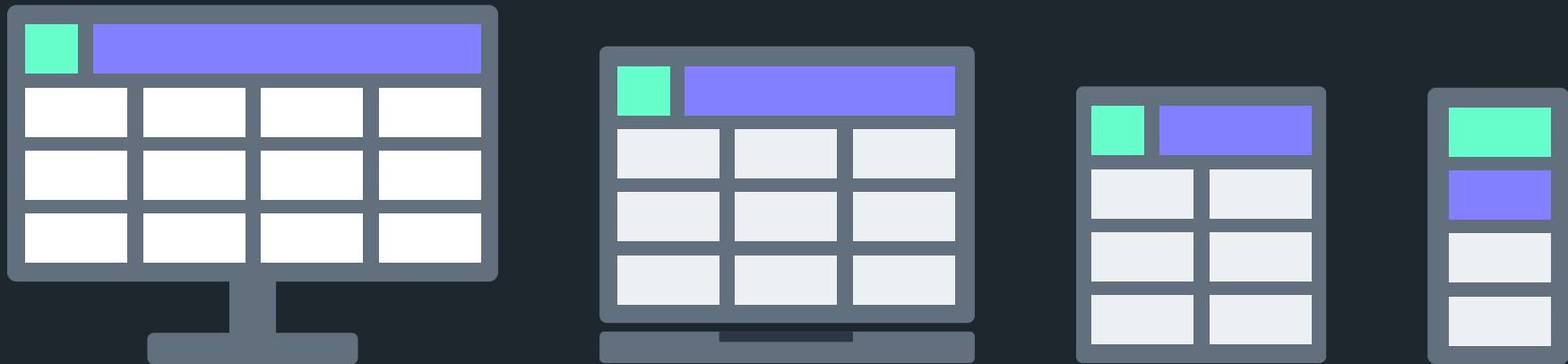
Clear all

Apply filters (4)

Filters reimaged
Design concept II

But what about 'responsive' dashboards?

We will experiment with a new layout mode for dashboards: grids*

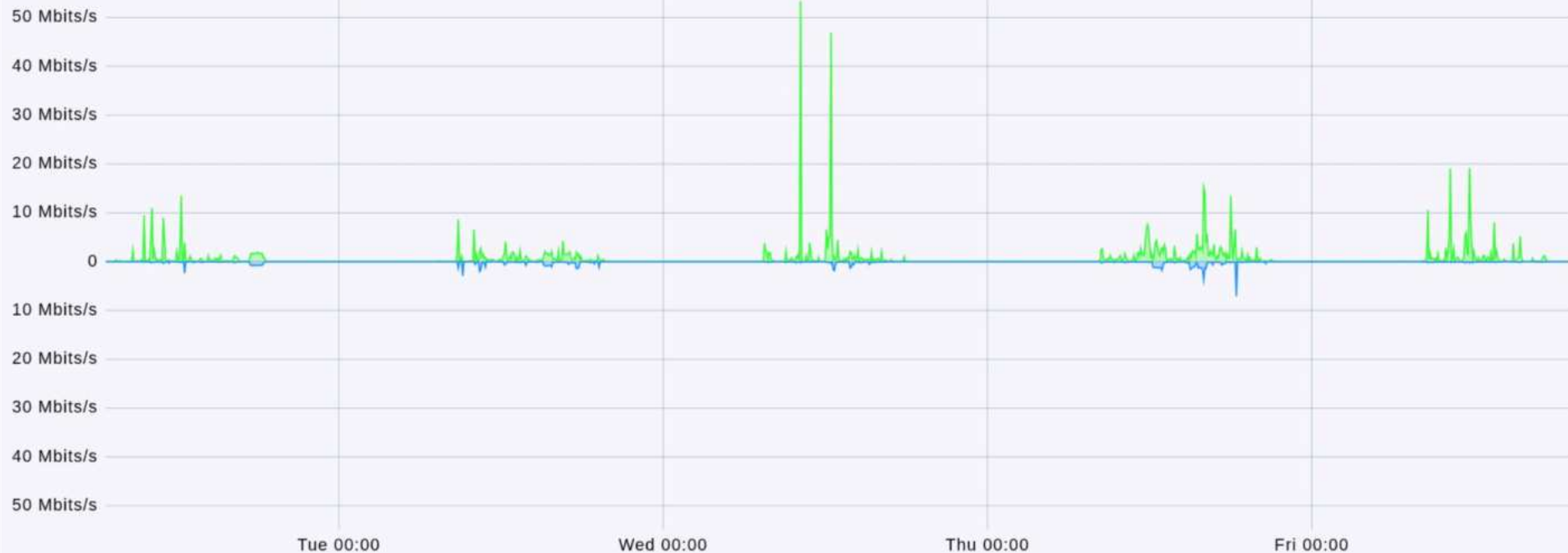


Dashboards are nothing without ...



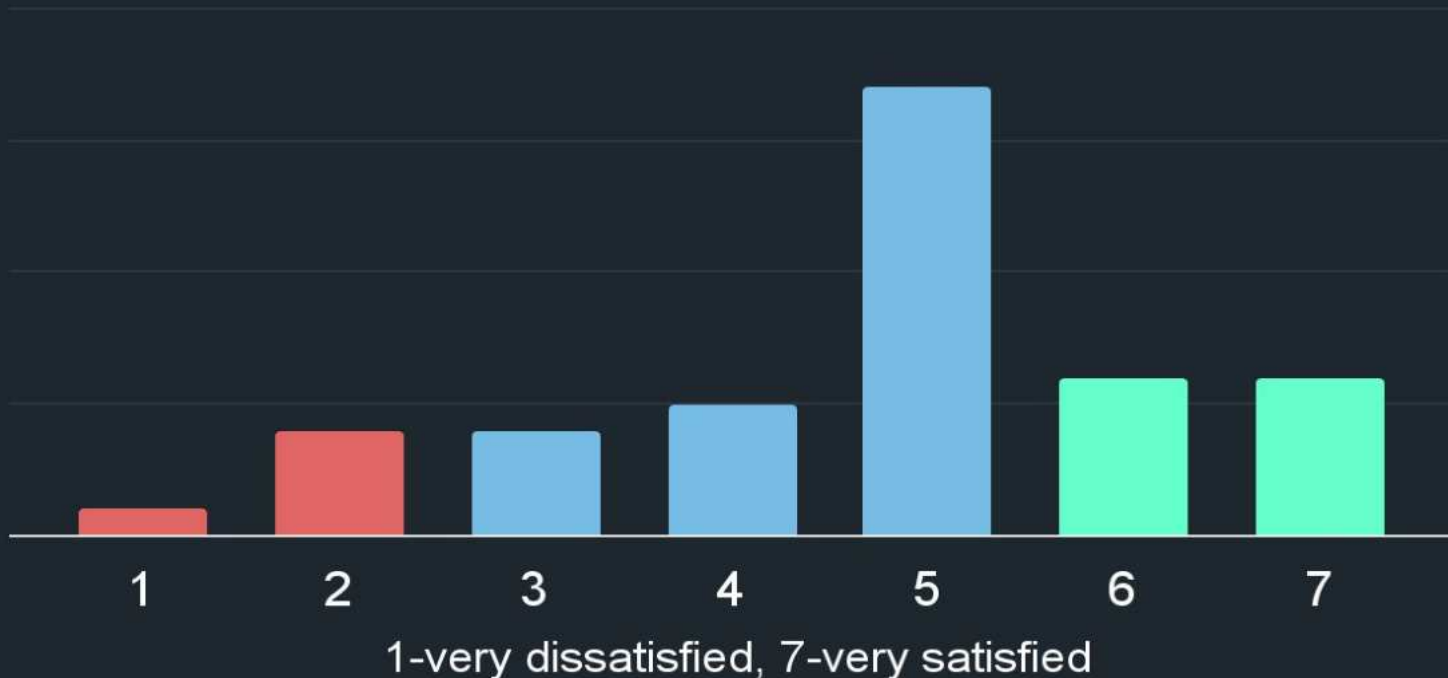
Bandwidth

2025-05-05 — 2025-05-09 @ 5m



Most are happy. But is this enough?

How satisfied are you with the current graph interactions such as panning?



Especially if the capabilities already exist ...

... but are just hidden



Commands Service Host Export Display Help      

Modify display options

Graph rendering options

Entries per row

Graph time range

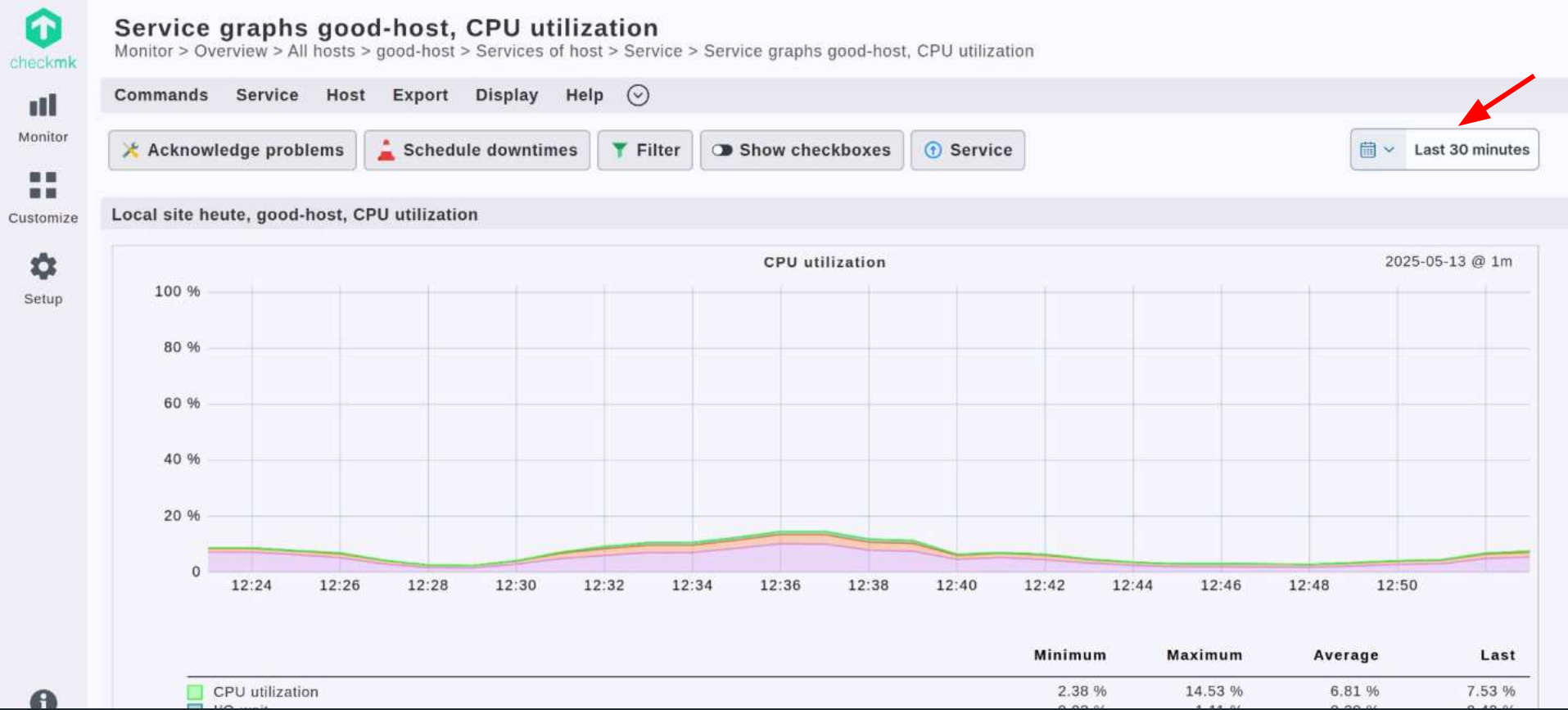
Today
Yesterday
7 days back (this day last week)
8 days back
This week
Last week
2 weeks back

Date & time range ▲

From:	Year	Month	Day	Hour	Minute	Sec.
	2025	5	11	22	34	14
To:	Year	Month	Day	Hour	Minute	Sec.
	2025	5	11	22	34	14

ges of other graphs on the current page

Changing time ranges on the fly



Our principles for Checkmk



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

	2.3	2.4	2.5	
Service discovery	6.2s	2.2s	?	
Activate changes	5.6s	2.4s	?	
Parameters of this service	2.5s	0.7s	?	
Manpages	3.0s	1.0s	?	
Bake agents	4.9s	2.7s	?	
Adding 8 services manually	35.1s	8.0s	?	

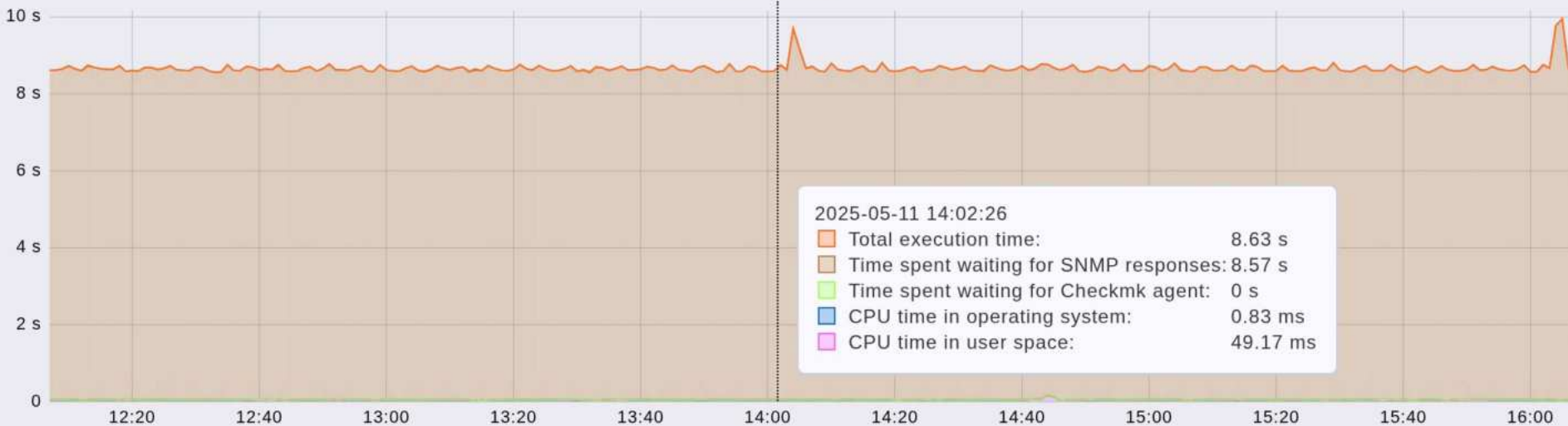
Note: Two identical systems were compared with 421 hosts, 4483 services, 4 cores, 8 GB RAM.

... some things will always need time ... SNMP



Time usage by phase

2025-05-11 @ 1m

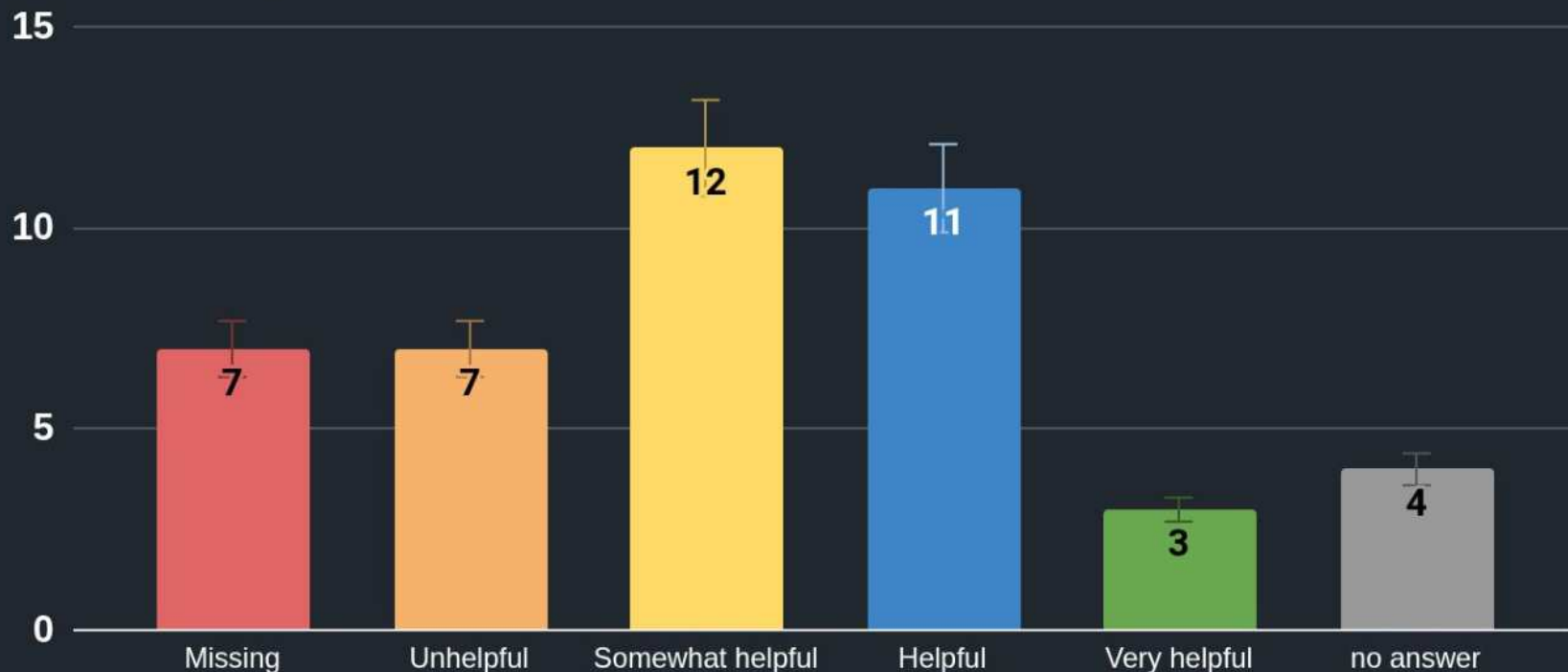


	Minimum	Maximum	Average	Last
Total execution time	8.55 s	9.95 s	8.67 s	8.66 s
Time spent waiting for SNMP responses	8.51 s	9.91 s	8.62 s	8.61 s

If it will take long, at least the user needs to know



How do you experience the feedback you get when loading is slow in these areas?
[Service discovery]



Your feedback... Your ideas.



'You never know if Checkmk responding or not'

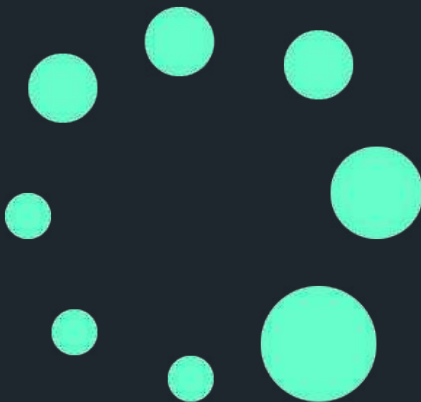
the only indicator that anything is happening at all is that the browser's address bar has changed to its "loading" look.'

'any information that the page is still loading'

'Time progressed ... 3,2,1'

'a classic loading spinner'

Loading spinners



Coming in
2.5.0

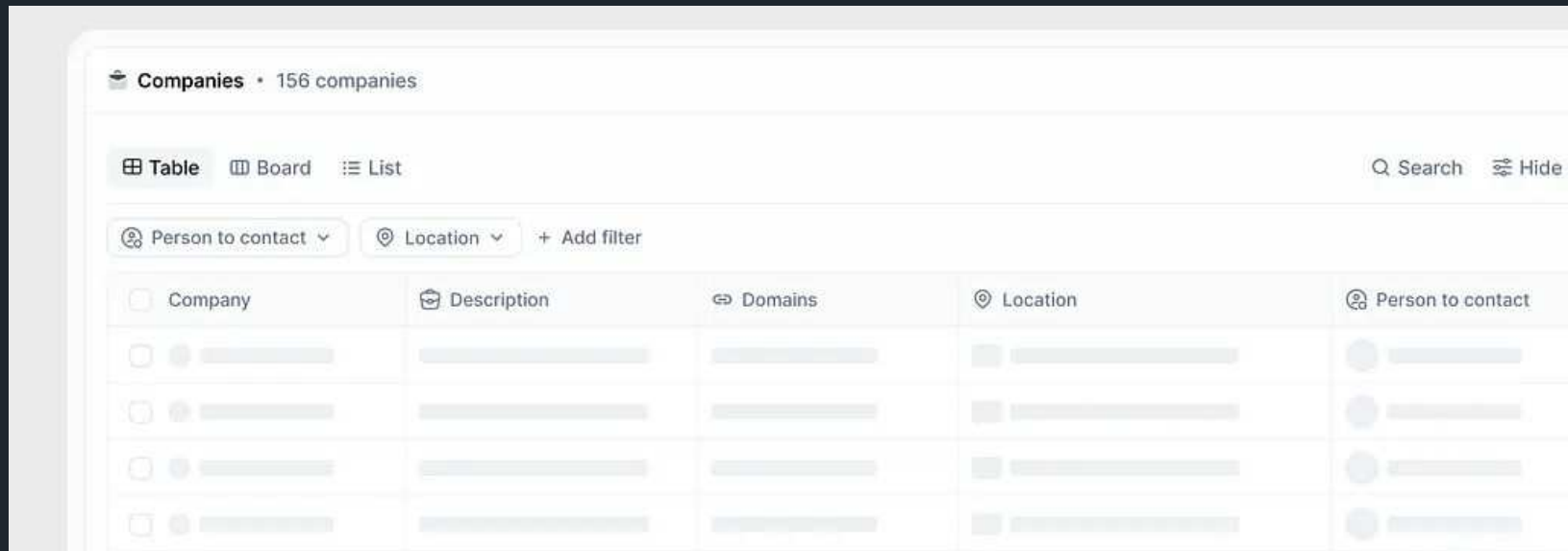
Confirmations



Successfully deleted 1 hosts

Implemented in more places in 2.5.0

Page skeletons



Maybe in the future

	2.3	2.4	2.5
Service discovery	6.2s	2.2s	?
Activate changes	5.6s	2.4s	?
Parameters of this service	2.5s	0.7s	?
Manpages	3.0s	1.0s	?
Bake agents	4.9s	2.7s	?
Adding 8 services manually	35.1s	8.0s	?

If possible, we will always try to fix problems at the source

Note: Two identical systems were compared with 421 hosts, 4483 services, 4 cores, 8 GB RAM.

Our principles for Checkmk



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Extensible interfaces

for automation & development



```
curl -X 'GET' \  
  
'https://prod.blume.net/master/check_mk/api/1.0/objects/  
host_config/example.com \  
-H 'accept: application/json'
```

400+ werks later ... time for a versioned REST API



Checkmk

2.0.0	2.1.0	2.2.0	2.3.0	2.4.0	2.5.0
-------	-------	-------	-------	-------	-------

REST-API

1.0	1.0	1.0	1.0	1.0	?
-----	-----	-----	-----	-----	---

10	57	108	145	85	-
----	----	-----	-----	----	---

REST-API werks*

Feature depth (endpoints)

Stability

So, just version the API!

Challenges



Typical REST-API applications

Web-based (SaaS)

One version in the field

Continuous releases

One edition

Checkmk

Self-hosted

Multiple versions in the field

Yearly major & (bi-)weekly patch releases

Multiple editions

Endpoint or top-level versioning?

Versioning scheme

Endpoint versioning

```
/api/fruits/v1
```

```
/api/veggie/v2
```



Top-level versioning

```
/api/v1/*
```

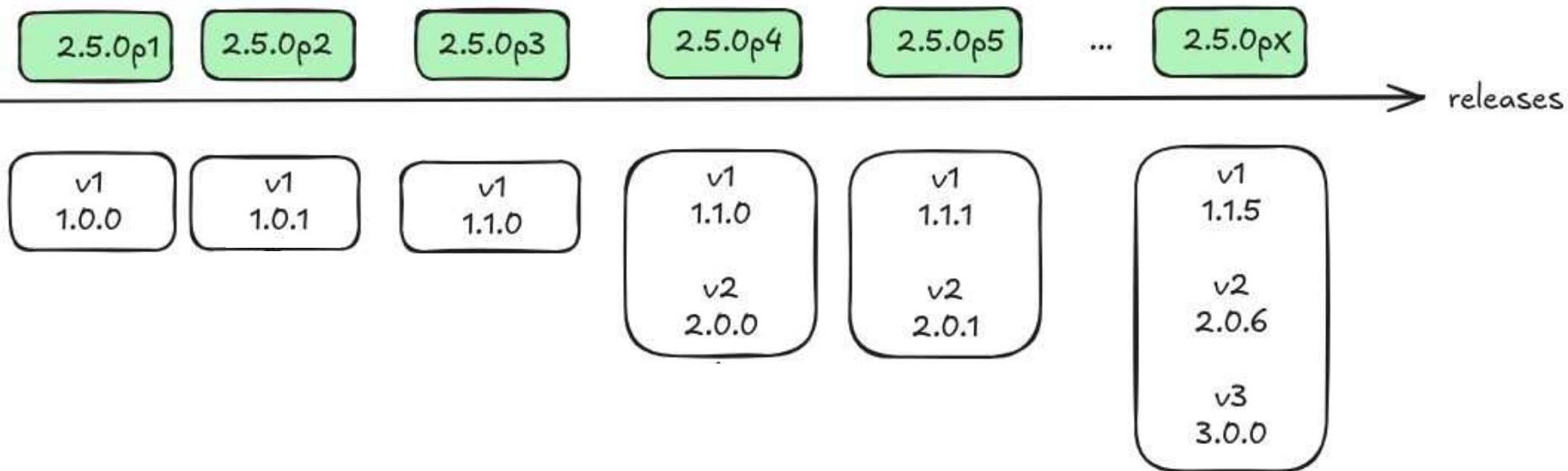


Semantic versioning

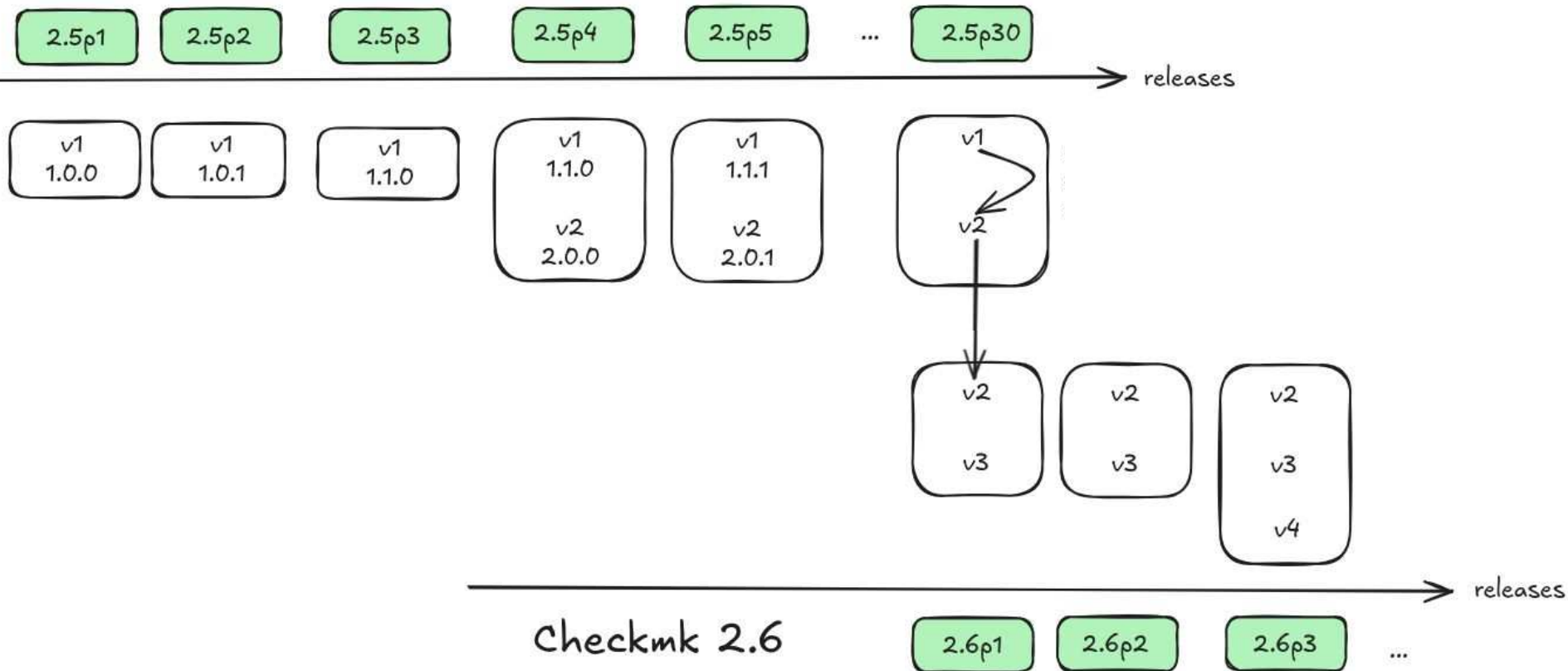


		1.0.0	v1
Compatible bug fix → New PATCH version	→	1.0.1	v1
New compatible functionality → New MINOR version	→	1.1.0	v1
Breaking change → New MAJOR version	→	2.0.0	v2

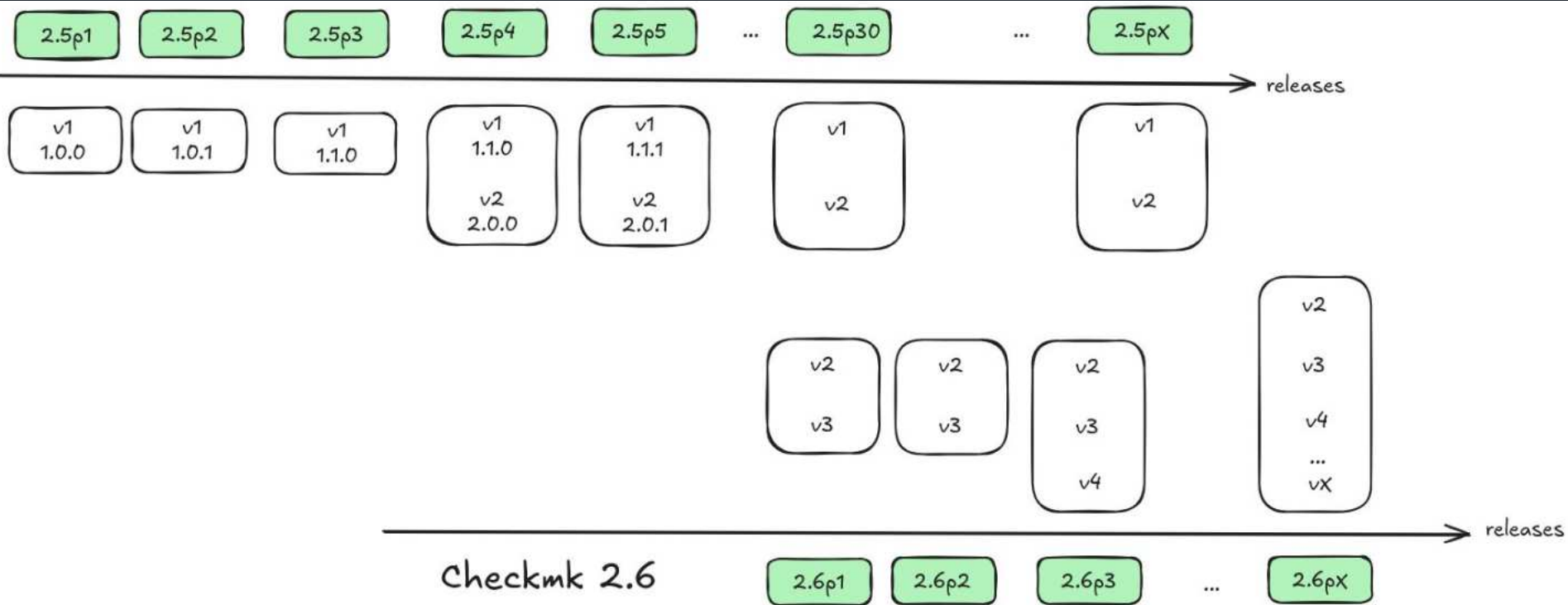
Within a Checkmk major version, all published REST API versions will be continuously supported.



Smooth migration between major versions possible



Old stable versions will only receive compatible fixes



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Checkmk 2.4 introduced a new platform for features

Guided configuration



The screenshot shows the 'Add notification rule' configuration page in Checkmk. The page is titled 'Add notification rule' with a breadcrumb 'Setup > Events > Notifications > Add notification rule'. A 'No pending changes' status is shown in the top right. The left sidebar contains navigation icons for 'checkmk', 'Monitor', 'Customize', and 'Setup'. The main content area has tabs for 'Notification rule', 'Display', and 'Help'. Below the tabs are 'Cancel' and 'Notifications' buttons. The configuration is in 'Guided mode', with 'Overview mode' also available. A progress indicator on the left shows three steps: 'Triggering events' (completed), 'Filter for hosts/services' (completed), and 'Notification method (plug-in)' (current step, marked with a '3'). Under 'Triggering events', there are sections for 'Specific events' and 'Host events'. The 'Host events' section shows two state change rules: 'From: Any to: DOWN,' and 'From: Any to: UP,'. The 'Notification method (plug-in)' section asks 'What should be sent out?' and shows 'Notification effect' buttons: 'Send notification' and 'Suppress all previous'. Below these are a dropdown menu for 'HTML Email' and a 'Select parameters' link.

Add notification rule
Setup > Events > Notifications > Add notification rule

No pending changes

Notification rule Display Help

Cancel Notifications

Guided mode Overview mode

✓ **Triggering events**
Specific events:
Host events: State change: From: Any to: DOWN,
State change: From: Any to: UP,

✓ **Filter for hosts/services**

3 **Notification method (plug-in)**
What should be sent out?

Notification effect

Send notification Suppress all previous

HTML Email

Select parameters

Checkmk 2.4 introduced a new platform for features

Slide-ins for on-the-fly editing



The screenshot displays the 'Add notification rule' configuration page in Checkmk 2.4. On the left, a sidebar contains navigation links: Monitor, Customize, and Setup. The main content area is titled 'Add notification rule' with a breadcrumb 'Setup > Events > Notifications > Add'. Below this, there are tabs for 'Notification rule', 'Display', and 'Help'. A 'Cancel' button is visible. The 'Notification rule' tab is active, showing a 'Guided mode' button and a progress indicator with three steps: 1. Triggering events, 2. Filter for hosts/service, and 3. Notification method (pl). The 'Notification method (pl)' step is currently selected, showing a 'What should be sent out?' section. A slide-in window titled 'Edit HTML Email parameter' is open on the right, featuring 'Save' and 'Cancel' buttons. The slide-in contains sections for 'General properties' and 'Parameter properties'. Under 'Parameter properties', there are 'HTML Email parameters' and 'Settings'. The 'Settings' section includes checkboxes for 'URL prefix for links to Checkmk', 'Enable synchronous delivery via SMTP', 'Email header' (with sub-options for 'Custom sender ("From")', 'Custom recipient of "Reply to"', and 'Hide other recipients: Send individual notifications to each recipient' which is checked), and 'Subject line for host notifications'.

Checkmk 2.4 introduced a new platform for features

In-page validation



Monitor

Customize

Setup

Help

Connection Display Help

Save Dynamic host management

> General properties

▼ Connection properties

Connector type Piggyback data ⓘ

☐ Restrict source hosts ⓘ

Sync interval (required)

0 d 0 h 1 min 0 s

Piggyback creation options (required)

+ Add new entry

! Please specify at least one "Piggyback creation option"

Service discovery

✗ Discover services during creation

Checkmk 2.4 introduced a new platform for features

Tooltips



Monitor

Customize

Setup

Help

Connection Display Help

Save Dynamic host management

> General properties

Connection properties

Connector type Piggyback data ⓘ

Whenever Checkmk creates, modifies or deletes hosts via this connection, it will only consider hosts that receive piggyback data from hosts with names matching one of these regular expressions. Please note: The attribution of piggyback data to existing hosts is not affected by this setting.

☐ Restrict source hosts ⓘ

Sync interval (required)

0 d 0 h 1 min 0 s

Piggyback creation options (required)

+ Add new entry

! Please specify at least one "Piggyback creation option"

Service discovery

☒ Discover services during creation

The foundation for a great Checkmk UI



Interactive UI

No more full
page re-rendering

**Immediate
feedback**

**Dynamic
pages**

**Lower CPU
usage**

**Faster user
interface**

More performance

Due to rendering
in the front-end

The new UI platform has arrived ...

... partially

2.4.0

2.5.0

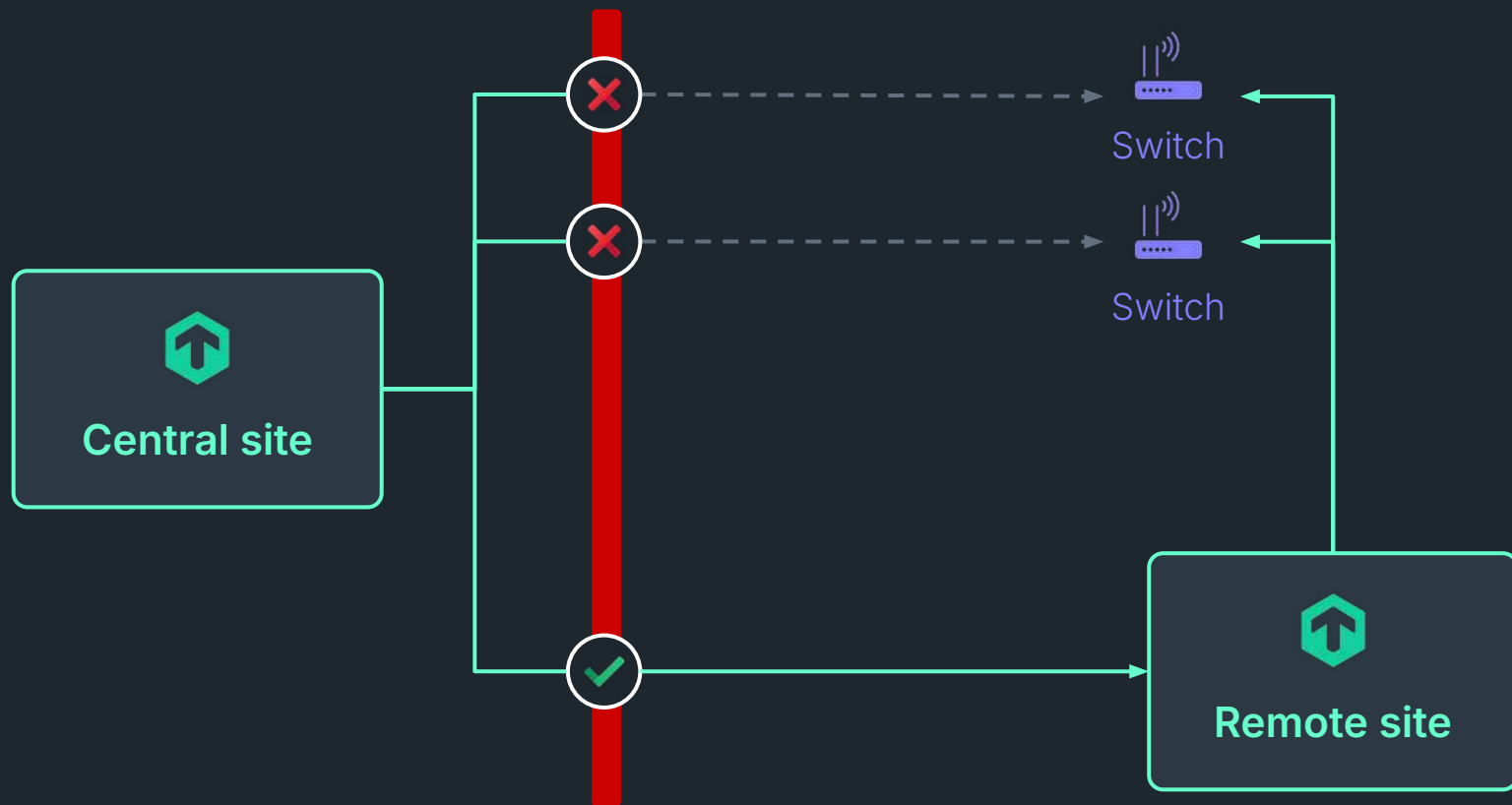
- Build the new UI platform
 - Implement new UI features with it
 - Notifications
 - Quick setup
 - Replace elements of the UI
 - Dynamic configuration:
Add connection
- Custom graph editor
 - Activate changes slide-in
 - Host validations
 - Spinners
 - Skeletons
 - ... hopefully new rulesets
everywhere → in-page validation

The probe

A new approach to distributed monitoring



Monitoring segmented networks with Checkmk



Different reasons to go distributed



Performance

Horizontal
scaling



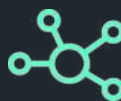
Organization

Access
control



Availability

Minimal blast
radius



Security

Segmented
networks



Connectivity

Unreliable
connections

This form of distributed monitoring brings a lot of value

Scalability

- Network bandwidth efficient

Reliability

- No reliance on central site
- No data gaps, no data jam
- Self-contained remote sites

Simplicity

- Add + remove remote sites



Full featured
Checkmk
required

Site

Redis cache

UI & REST API

API clients

Grafana
data source

livestatus

disk

HTTP

livestatus

dcd

Monitoring core
incl. helpers

disk

current state

Mail, HTTP, ...

Notification
targets

SSH, HTTP, ...

Automated
actions

disk

History

disk

Metrics

Metric
exporters

Config

livestatus

spool

liveproxyd

Event console

disk

Events

Check engine
Checkers & Fetchers

agent & piggyback tmp

disk

piggyback-hub

disk

agent-receiver

rabbitmq

AMQP

livestatus

Other site

syslog

SNMP
traps

Active checks
HTTP API
SNMP

agent pull

agent push

Other site

Monitored devices

But comes with some requirements



Remote sites ...



... are **not**
light-weight



... require
maintenance



... do **not** push
data centrally



Our SaaS solution ...

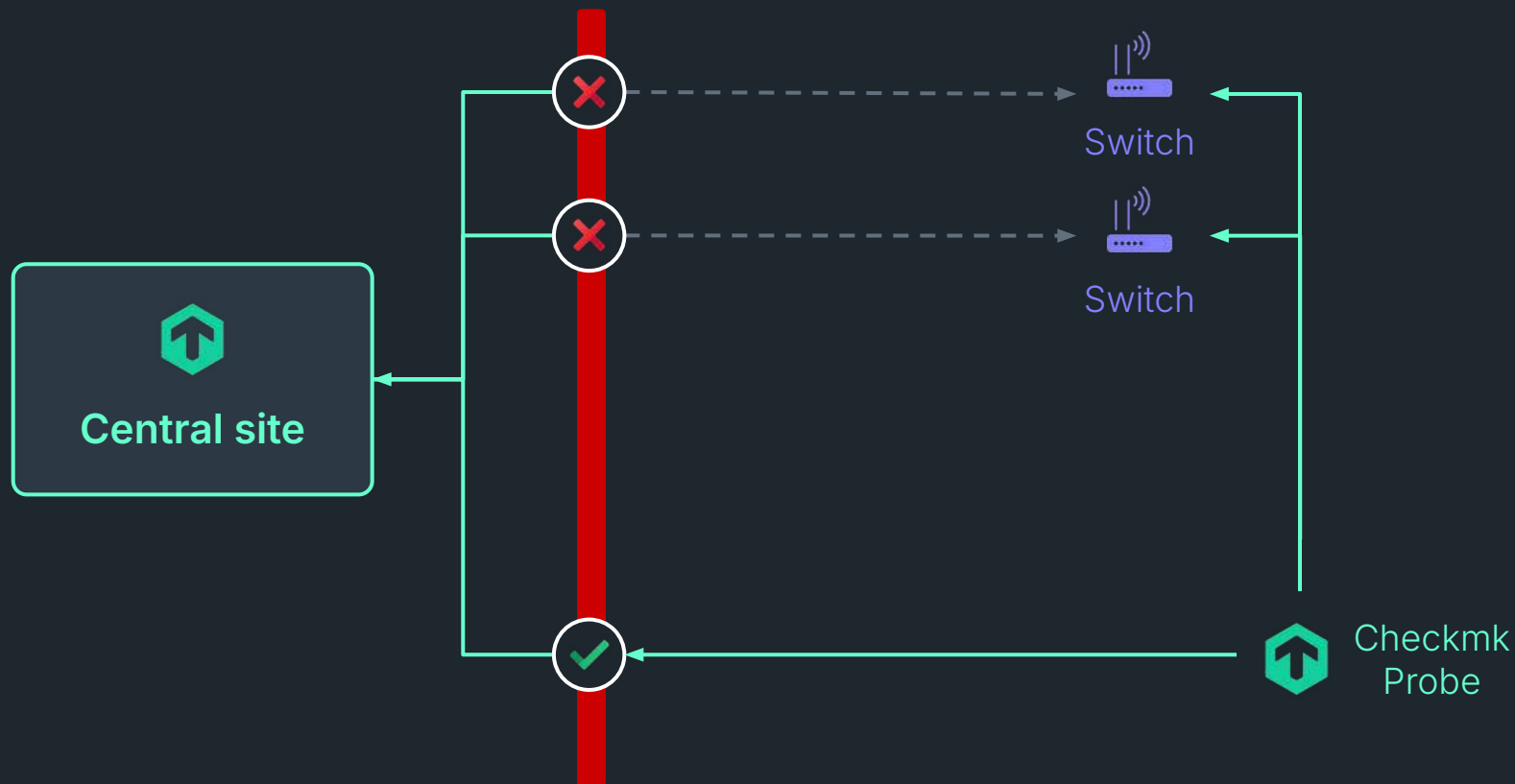


... is hands-off

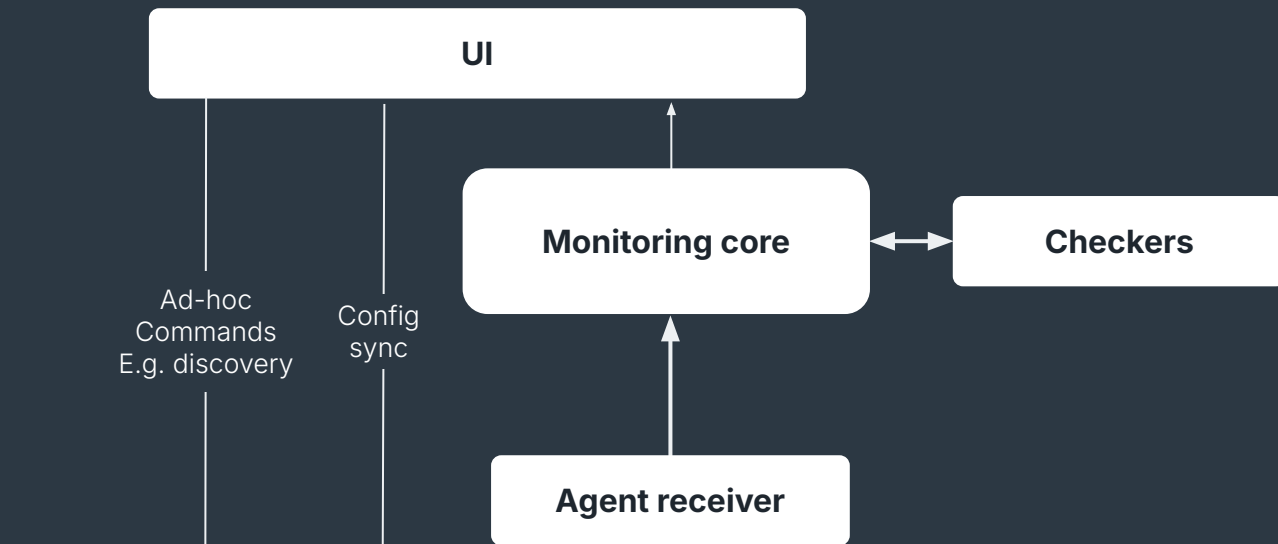


... is hassle-free

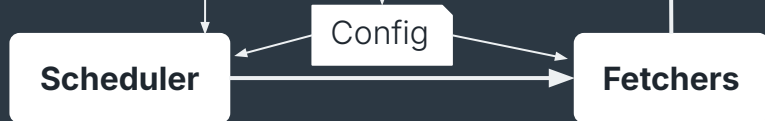
A light-weight probe for segmented networks



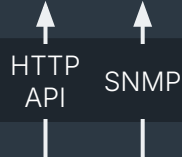
Central site



Probe



Monitored devices



SaaS probe tackles complete different use case



	SaaS probe	Remote site
Functionality	Minimalistic	Complete
Deployment	Lightweight container	Full application / fat container
Load distribution	Only for fetching data	Complete
Centrally manageable	Complete	Only config
Updates	Seamless and reliable	Manual + migrations
Reliability	Only buffering data	Independent, complete

The probe will be released first for SaaS



**Checkmk Cloud
(SaaS)**

**Checkmk
(Cloud & MSP)**

Product telemetry

Powering data driven product decisions



We validate our product decisions with users



checkmk

Micro survey 16: How should we handle leading or trailing (tab) spaces in input fields?

We're exploring how you interact with input fields that may contain leading or trailing (tab) spaces (for example in hostnames). This short survey will help us understand your expectations and experiences, so we can make improvements based on real user feedback.

Please remember:

- You can end the survey at any time. Your answers so far will be sent.
- Your answers are anonymous.
- When you're ready, click "Start".

Thank you in advance for taking the time to participate in this survey!

There are 10 questions in this survey.

THIS SURVEY IS ANONYMOUS.
The record of your survey responses does not contain any identifying information about you, unless a specific survey question explicitly asked for it.
If you used an identifying access code to access this survey, please rest assured that this code will not be stored together with your responses. It is managed in a separate database and will only be updated to indicate whether you did (or did not) complete this survey. There is no way of matching identification access codes with survey responses.

Next

Surveys

checkmk Ideas Portal

Enter your own Checkmk ideas or vote for existing ones

🔼 Top 🔽 Released (116) 🔼 All tags 🔽 🔍 Search... ⚡ Add

260 votes

Support AND, OR and NOT for labels in filters
Currently, a host needs to have all labels of a filter, so it is an AND operation. It would be very helpful, if a OR operation can be used, in terms of rules etc.
Suggested by: Ralf Schwarzer (18 Apr, 22) • Updated: 07 May • Comments: 22
👍👎🔖

238 votes

Support PiggyBack data from remote hosts
Implement a feature to browse piggyback data, which are shared by a product integrated way from remote sites
Suggested by: Thomas Uppert (17 May, 22) • Updated: 03 May • Comments: 16
👍👎🔖

133 votes

"Fake check results" should create hard state to test notifications
"Fake check results" should create hard state. This would allow to test the notifications
Suggested by: Thomas Uppert (30 May, 22) • Updated: 27 Feb • Comments: 18
👍👎🔖

130 votes

check_http2: Add ability to check a vhost on an IP/host that differs from the vhost's DNS record
As per https://forum.checkmk.com/t/3-3-new-http2-check-missing-option-for-different-hostname-q40091/968 the old check_http check, it was possible to...
Suggested by: jay2k1 (17 Jan, 24) • Updated: 24 Apr • Comments: 10
👍👎🔖

97 votes

Support AND/OR/NOT for labels in rules
see: Support logic for labels in rules https://forum.checkmk.com/gg42818/support-and-or-and-not-for-labels-in-filters-and-...
👍👎🔖

Ideas

Participant #1	Participant #2
Braucht ein bisschen um die abgerufene Website zu sehen Fände es gut, wenn das icon als eyecatcher neben der URL steht Hat nach "paypal" gesucht und hat es nicht gefunden -> dauert zu lange zum drüber hovern	"Service name würde ich anpassen"
Kommt sich ein bisschen doof vor Hat erwartet, dass HTTPS direkt im certificate check zu bekommen Man findet es nicht mit HTTPS -> Zu viel match auf HTTP "Braucht viel zu lange" um über Menü navigieren "Alles was Regelwerk ist, suche ich grundsätzlich"	Alles gut
Durch unintuitives Handeln, schwierig aber nicht unmöglich Erwartungshaltung: Geht von minimalistischen Ansatz aus - wenn ich etwas wissen möchte, dann möchte ich nur das wissen "Change connection buildup" ist schwer	Prinzipiell einfach gewesen TLS Verschlüsselung zu

Interviews

Problem #1

Are we talking to the right people?



Problem #1

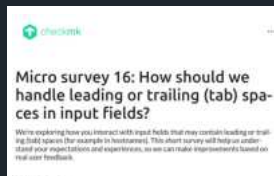
Are we talking to the right people?

Problem #2

What one says does not always match with what one actually does



Problem #3



What about the other 90%?

Product telemetry that works for Checkmk



Transparent data collection

You see what you send us.

The code is open-source.

You can review the machinery.

Privacy first

Minimal approach - only relevant data

Anonymized data

Aggregated information

Things we'd like to understand



Which **check
plug-ins** do
you use?

Which **rules**
do you use?

And how
many **rules**?

Which
**notification
methods** do
you use?

Which **global
settings** do
you change?

Do you use this
specific
feature?

Which **browser**?
What **screen
resolution**?

User experience

Applications

Infrastructure

Synthetic Monitoring

Hybrid
IT Monitoring

Full Stack
Observability

Data center



Cloud





Stream 1

Integrating OpenTelemetry & Prometheus metrics



Overview

Hosts: UP

21/21

Host statistics



Service statistics



Event statistics



Host overview



Runtime: CPU utilization



Recommendations per second



Runtime: CPU utilization



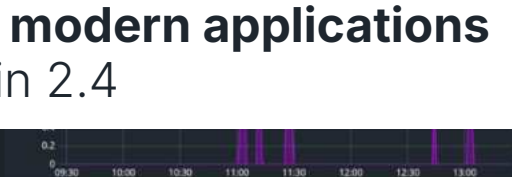
Runtime: thread count



JVM: CPU utilization



Queue size

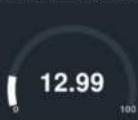


Recommendation service

Runtime: CPU utilization



Recommendations per second



ID	Icons	State	Last	Cnt.	Message	Last log entries
5189618		OK	3.57 s	1	Receive ListRecommendations for product ids ['9SIOT8TOJO', '86VCHSJNUP', '1YMWVN1N4O', 'LS4PSXUNUM', 'HOTGWGPNH4']	
5189619		OK	3.57 s	1	Receive ListRecommendations for product ids ['1YMWVN1N4O', 'LS4PSXUNUM', 'OLJCESPC7Z', '8PUK6V6EV0', 'L9ECAV7KIM']	
5189620		OK	3.57 s	1	Receive ListRecommendations for product ids ['OLJCESPC7Z', '1YMWVN1N4O', '8PUK6V6EV0', '6E92ZMYFFZ', '2ZYFJ3GM2N']	
5189615		OK	4.57 s	1	Receive ListRecommendations for product ids ['OLJCESPC7Z', 'L9ECAV7KIM', '9SIOT8TOJO', 'HOTGWGPNH4', '8PUK6V6EV0']	
5189616		OK	4.57 s	1	Receive ListRecommendations for product ids ['86VCHSJNUP', 'L9ECAV7KIM', '2ZYFJ3GM2N', 'OLJCESPC7Z', '6E92ZMYFFZ']	
5189617		OK	4.58 s	1	Receive ListRecommendations for product ids ['L9ECAV7KIM', '9SIOT8TOJO', 'HOTGWGPNH4', '6E92ZMYFFZ', 'OLJCESPC7Z']	
5189612		OK	6.58 s	1	Receive ListRecommendations for product ids ['2ZYFJ3GM2N', '6E92ZMYFFZ', '1YMWVN1N4O', '86VCHSJNUP', '8PUK6V6EV0']	

Receive ListRecommendations for product ids ['LS4PSXUNUM', '2ZYFJ3GM2N', 'OLJCESPC7Z']

Cart service

Runtime: CPU utilization



Runtime: thread count



ID	Icons	State	Last	Cnt.	Message	Last log entries
5189642		OK	3.49 s	1	GetCartAsync called with userid={userid}	
5189643		OK	3.49 s	1	GetCartAsync called with userid={userid}	
5189644		OK	3.49 s	1	GetCartAsync called with userid={userid}	
5189637		OK	4.49 s	1	GetCartAsync called with userid={userid}	
5189638		OK	4.49 s	1	GetCartAsync called with userid={userid}	
5189639		OK	4.49 s	1	GetCartAsync called with userid={userid}	
5189640		OK	4.49 s	1	GetCartAsync called with userid={userid}	
5189641		OK	4.49 s	1	GetCartAsync called with userid={userid}	
5189632		OK	5.49 s	1	GetCartAsync called with userid={userid}	
5189633		OK	5.49 s	1	GetCartAsync called with userid={userid}	
5189634		OK	5.49 s	1	GetCartAsync called with userid={userid}	

Ad service

JVM: CPU utilization

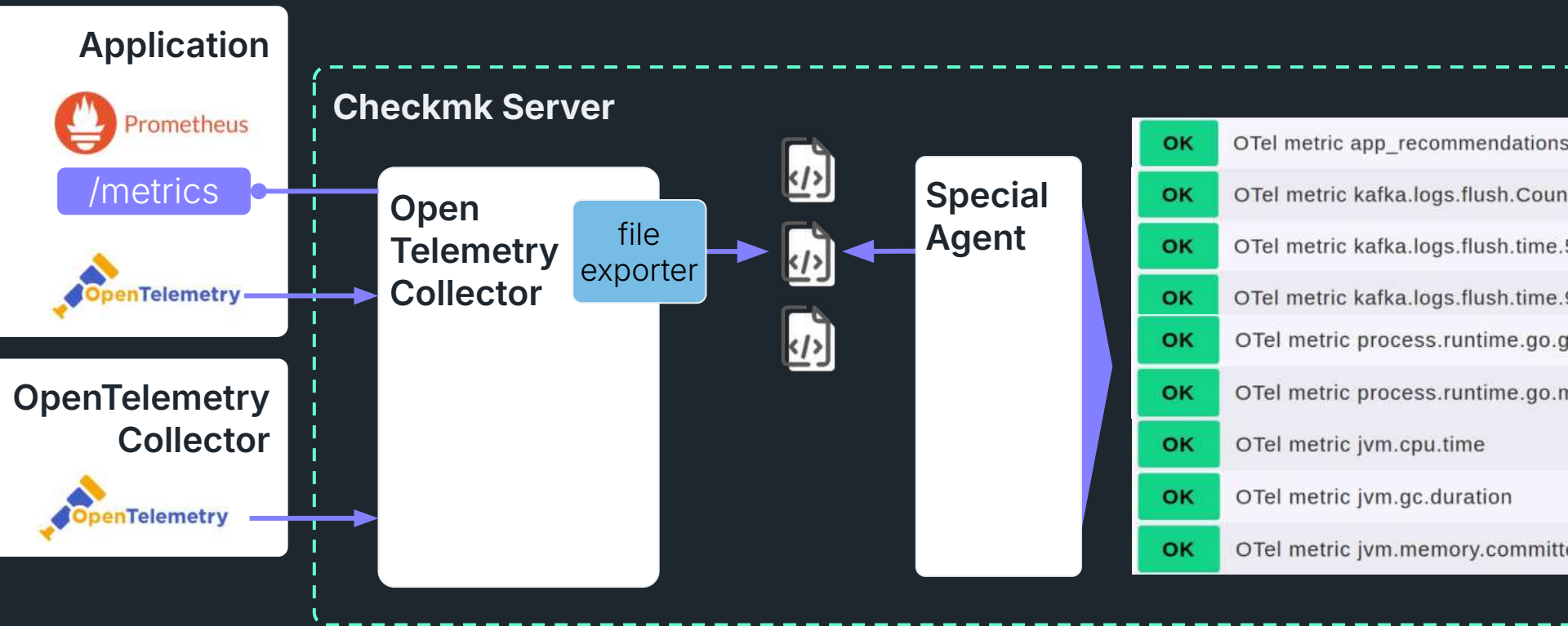


ID	Icons	State	Last	Cnt.	Message	Last log entries
5189424		OK	15.8 s	1	Targeted ad request received for [travel]	
5189152		OK	35.8 s	1	Targeted ad request received for [binoculars]	
5189078		OK	42.8 s	1	Non-targeted ad request received, preparing random response.	
5188833		OK	58.8 s	1	Targeted ad request received for [accessories]	
5188756		OK	60 s	1	Targeted ad request received for [books]	
5188712		OK	64 s	1	Targeted ad request received for [assembly]	
5188576		OK	74 s	1	Targeted ad request received for [travel]	
5188415		OK	86 s	1	Targeted ad request received for [telescopes]	
5188096		OK	109 s	1	Non-targeted ad request received, preparing random response.	
5187885		OK	121 s	1	Targeted ad request received for [travel]	
5187827		OK	124 s	1	Targeted ad request received for [books]	

Monitoring modern applications

Status quo in 2.4

Architecture of OTel / Prometheus integration



The OpenTelemetry monitoring workflow



**Pick up metrics
From the collector**

**Compute
host name**

**Convert metrics
to services**

Create alerts

Checkmk 2.4

It works.

Launched as experimental feature.

So that we have the freedom to make fundamental changes.

Checkmk 2.5

It works like a charm.

More authentication options



Pick up metrics
from the collector

Compute
host name

Convert metrics
to services

Create alerts

▼ Opentelemetry Collector (Experimental) properties

Receiver protocol GRPC ☒ Endpoint

Encryption

☐ Encrypt communication with TLS

IP address or hostname

0.0.0.0

Port

4319

Authentication

Authentication method

No authentication ▲

Basic authentication

No authentication

Receiver protocol HTTP ☐ Endpoint

Prometheus scrape configurations Job name (required)

foo

Scrape interval

Planned for 2.5

More than just basic authentication.

e.g.

- mTLS
- Bearer token
- OAuth2

Simpler host name computation



Pick up metrics
from the collector

**Compute
host name**

Convert metrics
to services

Create alerts

▼ Opentelemetry Collector (Experimental) properties

Host name computation



Literal string



pod_eks_



Value of attribute



k8s.namespace.name



Literal string



_



Value of attribute



k8s.pod.name

Add new field

Add new rule

Simpler host name computation



Pick up metrics
from the collector

**Compute
host name**

Convert metrics
to services

Create alerts

```
"resource": {
  "attributes": [
    {
      "key": "k8s.pod.name",
      "value": {
        "stringValue": "shop-adservice-6c67b-w84zn"
      }
    },
    {
      "key": "k8s.namespace.name",
      "value": {
        "stringValue": "otel-demo"
      }
    }
  ],
}
```

Simpler host name computation



Pick up metrics
from the collector

**Compute
host name**

Convert metrics
to services

Create alerts

▼ Opentelemetry Collector (Experimental) properties

Host name computation Literal string pod_eks_

▼ Opentelemetry Collector (Experimental) properties

Host name computation .. Value of attribute Add attribute

Add new field

- host.name
- service.name
- k8s.pod.name
- k8s.namespace.name
- k8s.deployment.name
- process.owner
- process.runtime.name
- container.id

Checkmk 2.5

Convert to proper Checkmk metrics



Pick up metrics
from the collector

Compute
host name

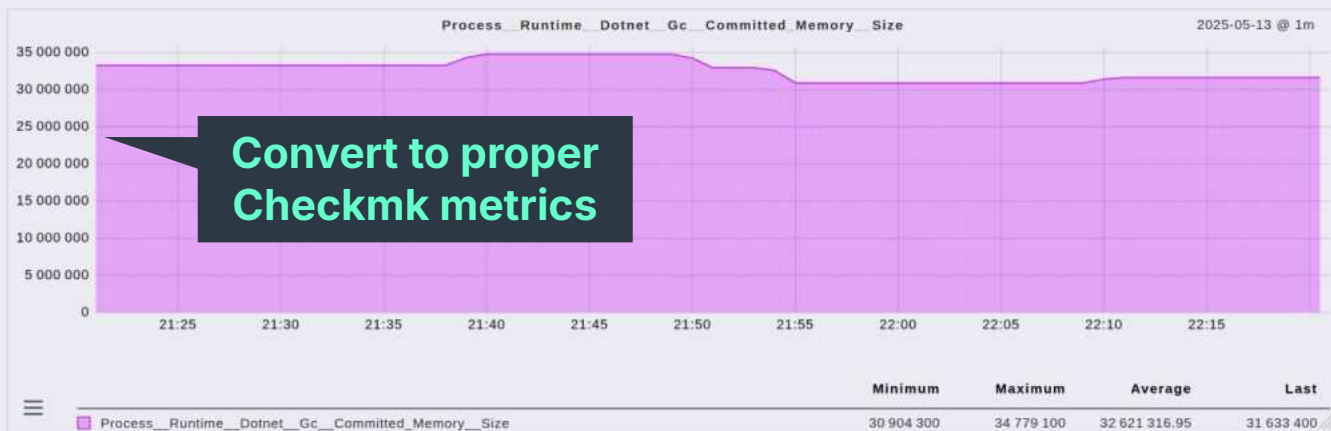
Convert metrics
to services

Create alerts

Service name	OTel metric process.runtime.dotnet.gc.committed_memory.size
Service state	OK
Summary	31633408.00 bytes
Details	31633408.00 bytes The amount of committed virtual memory for the managed GC heap, as observed during the latest garbage collection. Committed virtual memory may be larger than the heap size because it includes existing objects (the heap size) and some extra memory that is ready to handle newly allocated objects in the future. The value will be unavailable until at least one garbage collection has occurred. Data points: 31633408 bytes

Service Perf-O-Meter

Service graphs



Handling multi-dimensional OTel metrics



Pick up metrics
from the collector

Compute
host name

Convert metrics
to services

Create alerts

Service OTel metric process.runtime.dotnet.gc.heap.size, pod_eks_otel-demo_shop-cartserv

Monitor > Overview > All hosts > pod_eks_otel-demo_shop-cartservice-597f4ffcf4-9brmg > Services of host > Service

Commands Service Host Export Display Help      

Service name OTel metric process.runtime.dotnet.gc.heap.size

Service labels

Service icons 

Service state

OK

Summary

The heap size (including fragmentation), as observed during the latest garbage collection. The value

Ability to pick select / all
metrics for conversion

The heap size (including fragmentation),
Data points:

generation:gen0 : 400656 bytes
generation:gen1 : 182280 bytes
generation:gen2 : 2258888 bytes
generation:loh : 11347736 bytes
generation:poh : 144704 bytes

Basic math operations,
e.g. sum of *

Piggyback onto existing check plug-ins



Pick up metrics
from the collector

Compute
host name

Convert metrics
to services

Create alerts

Host name pod_eks_otel-demo_shop-recommendationservice-65d99985f4-p5k69

Service name OTel metric system.disk.io

Service labels

Service icons ☰

Service state

Summary System disk IO

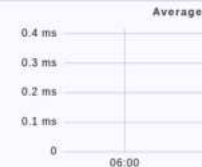
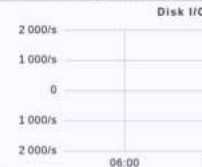
Details
System disk IO
Data points:
device:nvme0n1, direction:read : 1262909952 bytes
device:nvme0n1, direction:write : 185372539904 bytes
device:nvme0n1p1, direction:read : 1260399104 bytes
device:nvme0n1p1, direction:write : 185372498944 bytes
device:nvme0n1p128, direction:read : 184320 bytes
device:nvme0n1p128, direction:write : 0 bytes

OK Disk IO LVM vgubuntu-root

OK Disk IO LVM vgubuntu-swap_1

OK Disk IO nvme0n1

OK Disk IO SUMMARY



Stream 1

**Integrating OpenTelemetry
& Prometheus metrics**

Stream 2

**A new data backend
for Checkmk**

Applications – less predictable than hardware ...

... from a monitoring perspective



Time



**Application metrics can be short-lived.
Metric metadata can change, if the application changes.**

Application metrics are nothing without metadata I



```
{
  "resourceMetrics": [
    {
      "resource": {
        "attributes": [
          {
            "key": "k8s.pod.name",
            "value": {
              "stringValue": "shop-adservice-6c67b-w84zn"
            }
          },
          {
            "key": "k8s.namespace.name",
            "value": {
              "stringValue": "otel-demo"
            }
          }
        ]
      }
    }
  ]
}
```

Like a metric. Volatile

Application metrics are nothing without metadata II



```
"name": "process.runtime.gc.heap.size",
"description": "...",
"unit": "bytes",
"sum": {
  "dataPoints": [
    {
      "attributes":
      [ { "key": "gen",
          "value": { "stringValue": "gen0" } } ],
      "startTimeUnixNano": "1746576910472164600",
      "timeUnixNano": "1747159750420100800",
      "asInt": "3006656"
    },
    {
      "attributes":
      [ { "key": "gen",
          "value": { "stringValue": "gen1" } } ],
```

```
# TYPE process_runtime_gc_heap_size gauge
process_runtime_gc_heap_size{gen="gen0"} 3006656
process_runtime_gc_heap_size{gen="gen1"} 140784
process_runtime_gc_heap_size{gen="gen2"} 1917432
process_runtime_gc_heap_size{gen="loh"} 4037600
```

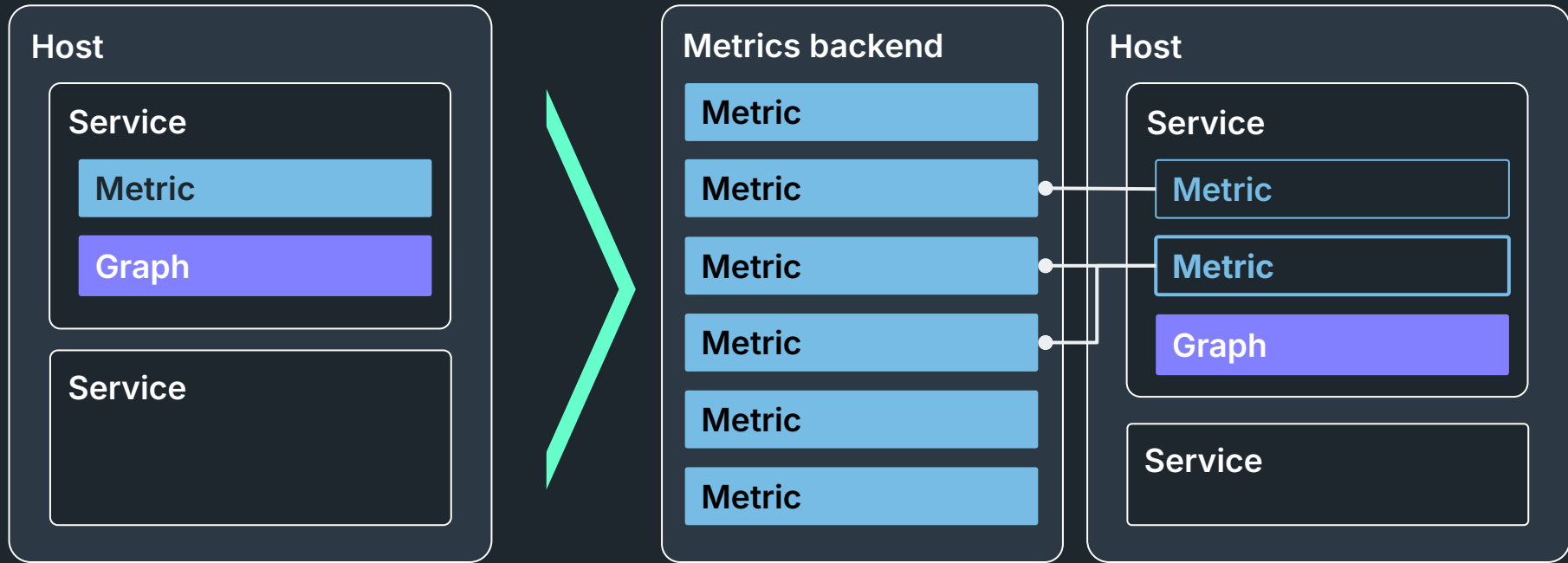
```
# TYPE http_client_request_duration_seconds
  histogram
http_client_request_duration_seconds_bucket{
  http_request_method="POST",
  http_response_status_code="200",
  network_protocol_version="1.1",
  server_address="shop-otelcol",
  server_port="4318",
  url_scheme="http",
  le="0.005"
} 61820
```

Applications require a different approach to monitoring

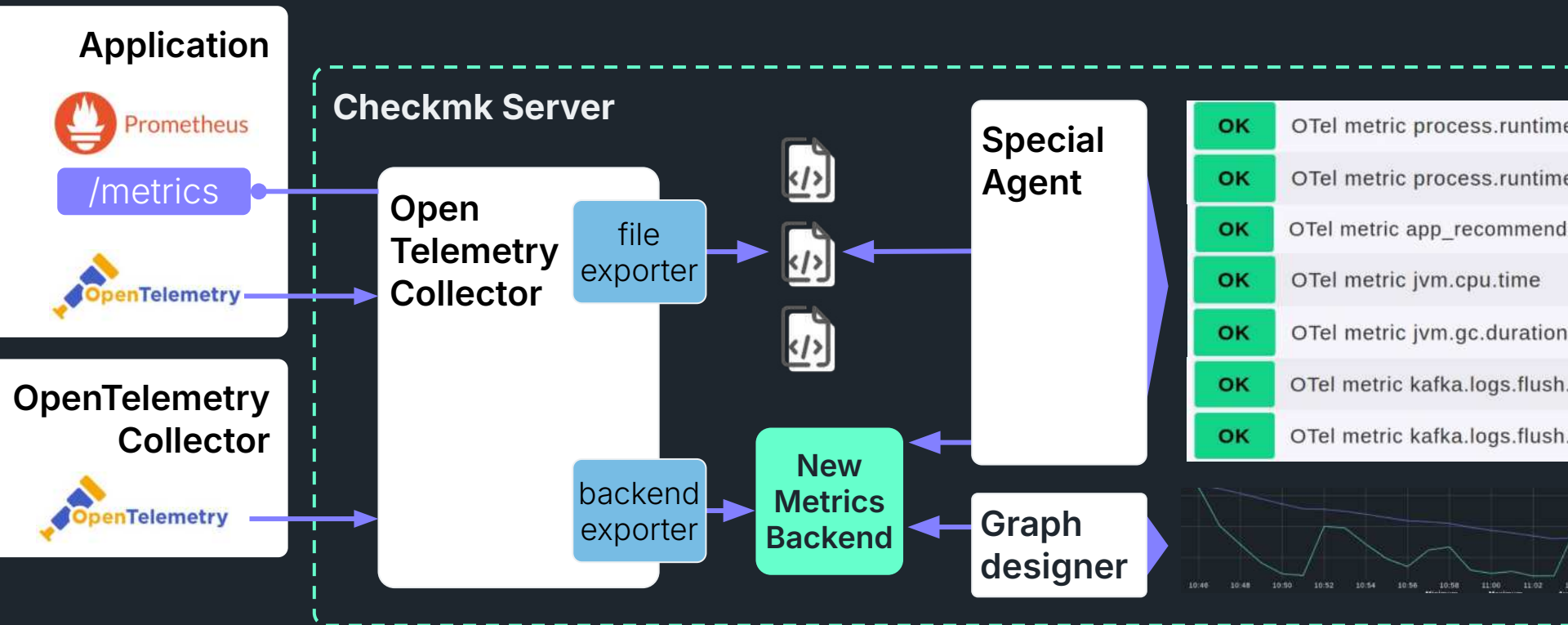
- Application metrics can be short-lived
- Application metrics can be multidimensional
- Application metrics are identified by metadata
- Application metadata can be very dynamic

For users:
Explore.
Query.
Understand.

Requires a new approach to metrics



Integrates well into our application monitoring stack



The end of RRD based host & service metrics?



2.4.0

2.5.0

2.6.0

2.7.0

2.8.0

RRD

?

New metrics backend

User experience

Applications

Infrastructure

Synthetic Monitoring



Hybrid
IT Monitoring



Self-
hosted

SaaS

Data center



Cloud



Full Stack
Observability

