The Checkmk 2.3 Roadmap

Martin Hirschvogel
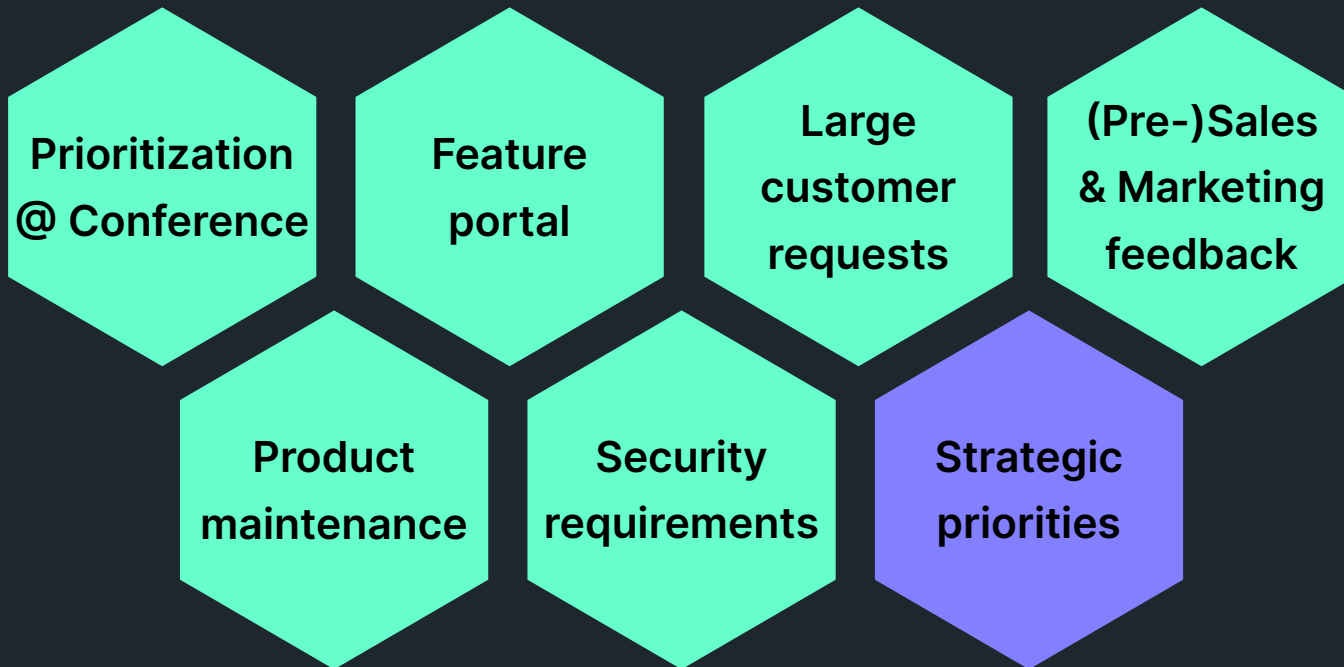
VP Product
Checkmk GmbH

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Checkmk
Conference

Origins of the Checkmk roadmap

Prioritization @ Conference

Feature portal

Large customer requests

(Pre-)Sales & Marketing feedback

Product maintenance

Security requirements

Strategic priorities

Make the product better

Expand the product

Checkmk roadmap cycle

~every year

| 2.3 roadmap definition | 2.2 release | 2.3 roadmap refinement | 2.3 release |

0-3 months before
current stable release

quarterly
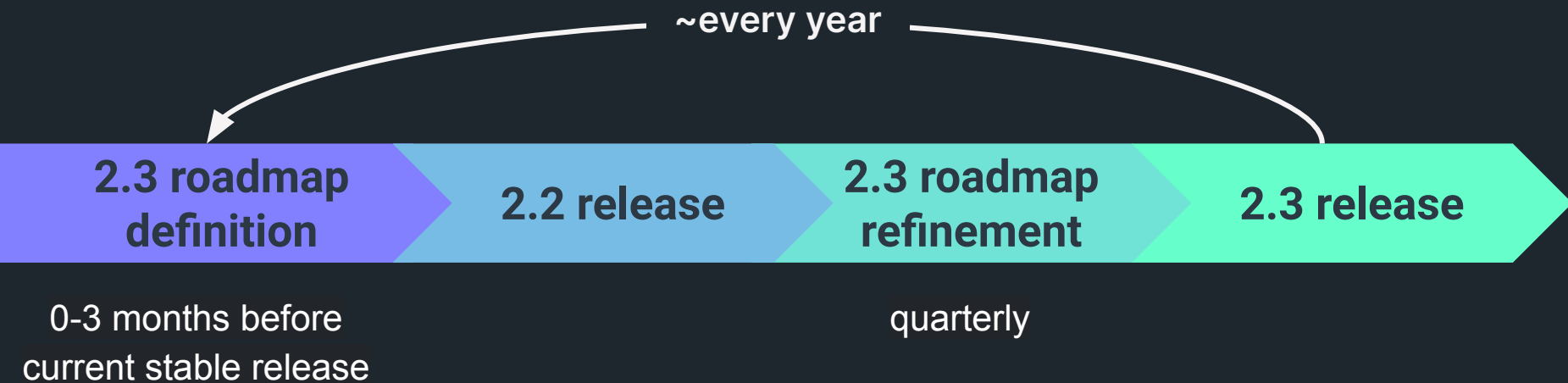
Strategic priorities from long-term roadmap

Visibility

Peak of Inflated Expectations

Build solutions for future challenges
e.g. Docker image, Cloud monitoring, Labels, Dynamic Config in Checkmk 1.6

NFTs

Time-Series DB

Plateau of Productivity

Metaverse

Hybrid Cloud

Slope of Enlightenment

Public Cloud

Trough of Disillusionment

Time

Source: Gartner Hype Cycle

Checkmk
Conference
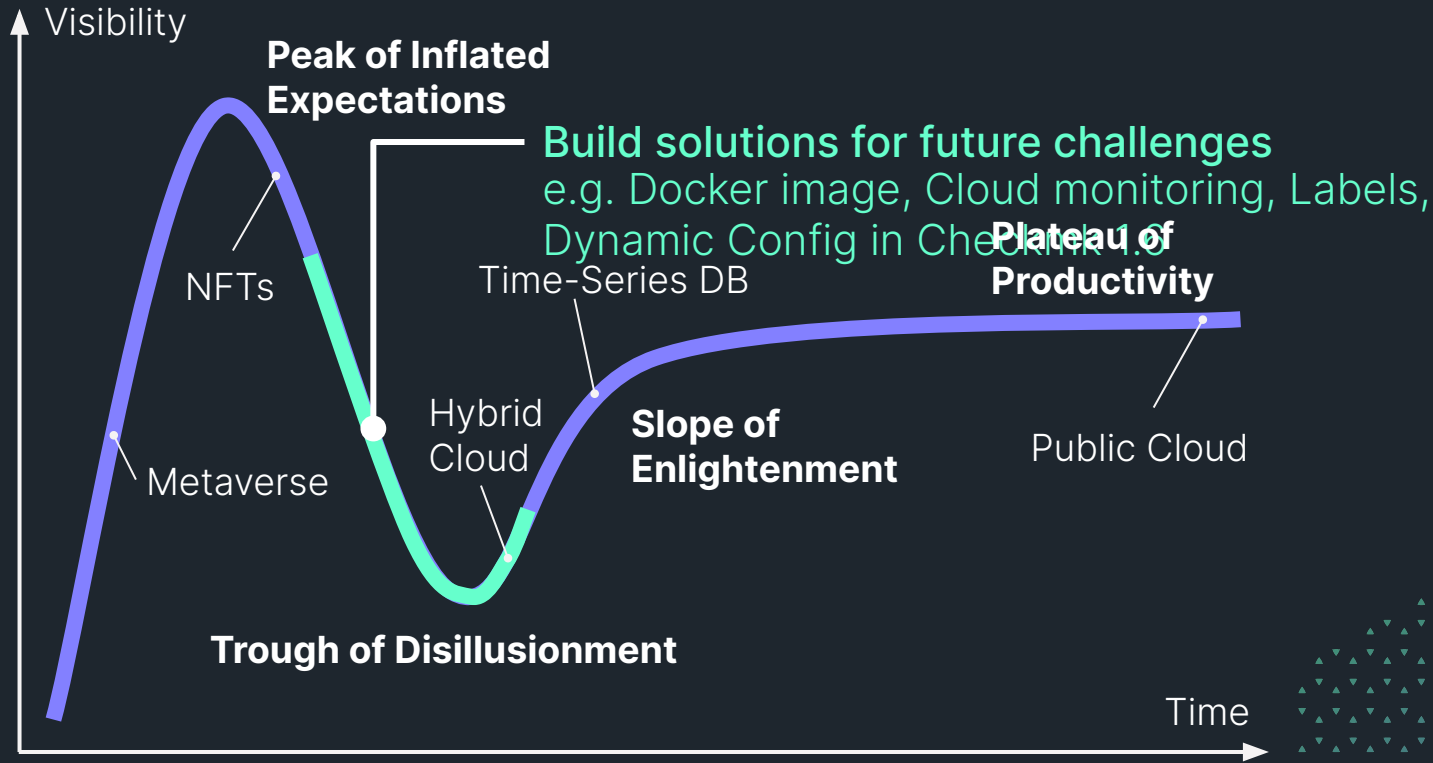
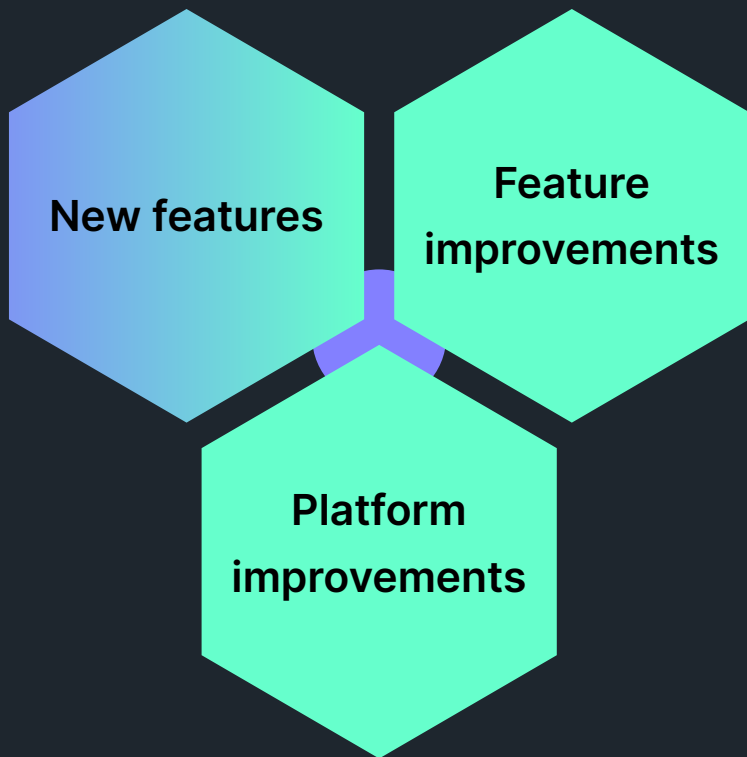# Example: 2018 conference roadmap voting
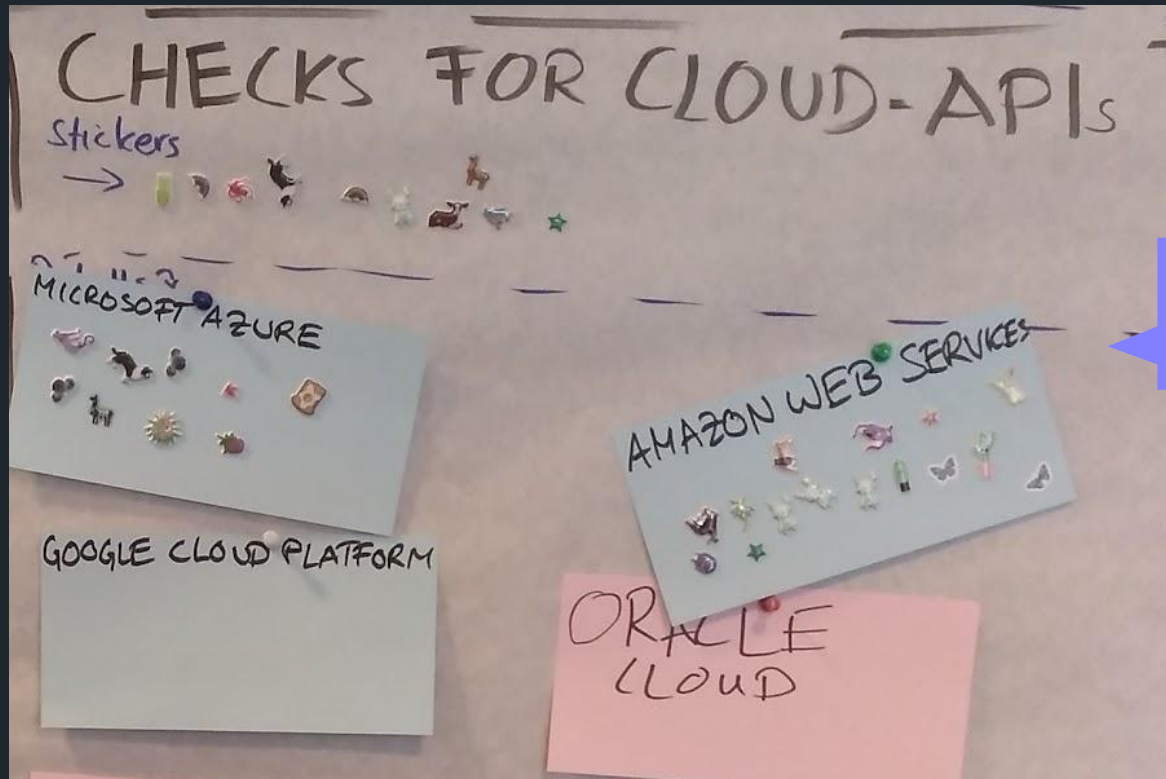
5% of all votes
(~700 stickers in total)

Balance between features & improvements

New features

Feature improvements

Platform improvements

Prioritized by relevance for all users, especially large customers; and effort

Selection process for Checkmk 2.3
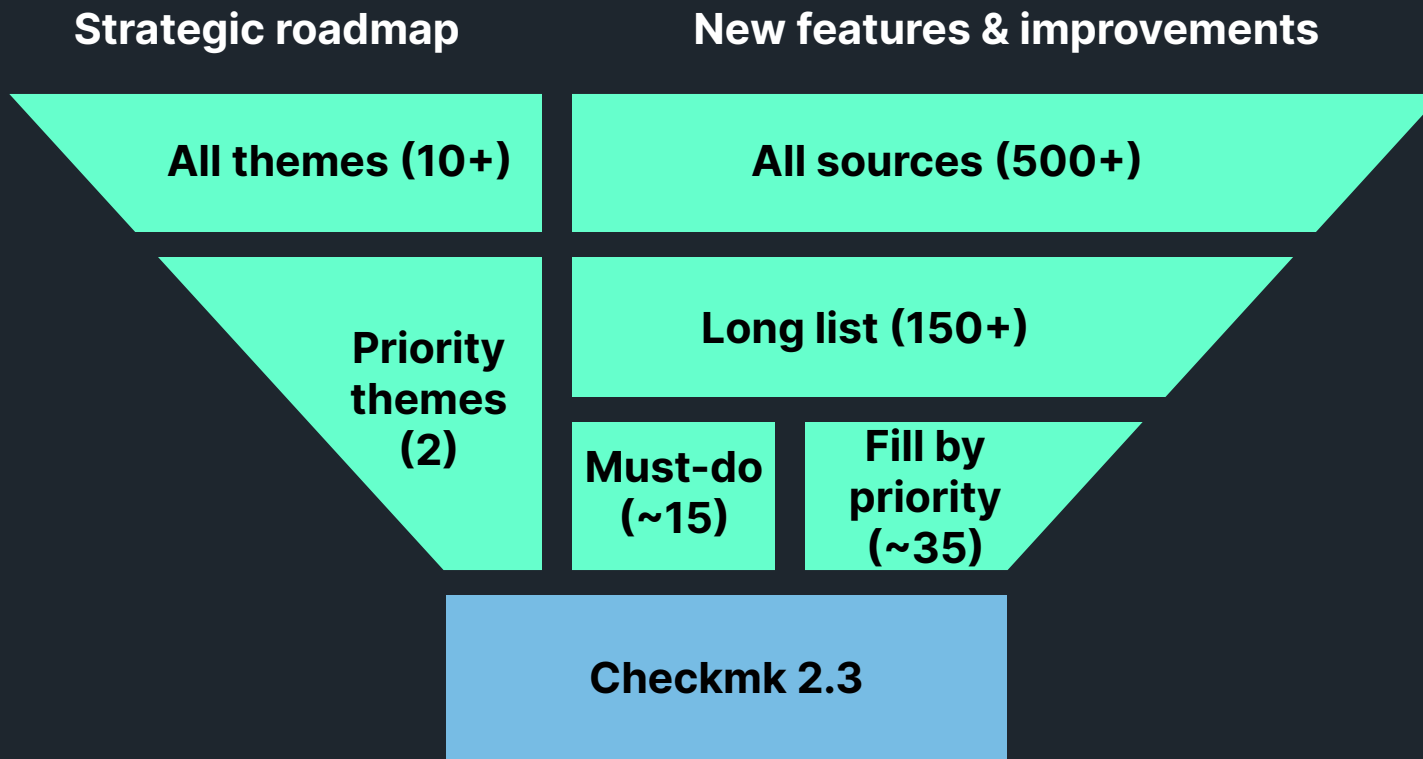
Strategic roadmap

New features & improvements

All themes (10+)

All sources (500+)

Priority themes (2)

Long list (150+)

Must-do (~15)

Fill by priority (~35)

Checkmk 2.3

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Improvements to current editions

Improve core features

Feature portal & UX research

Make labels more powerful

9

64 votes

Support AND/OR/NOT for labels in rules

was: Support Regex for Labels in Rules https://features.checkmk.com/suggestions/293832/support-and-or-and-not-for-labels-in-filters and ...

Suggested by: **Gerd Stolz** (31 Oct, '22) • Upvoted: yesterday • <u>Comments: 6</u>

Planned

62 votes

Setup: periodic service discovery rule - automatically update new/changed host labels

The current service discovery rule only allows automatically update services AND labels together. Since host labels can change frequently when e.g. a VM ist moved ...

Suggested by: **Lars Grenzendörfer** (31 May, '22) • Upvoted: today • <u>Comments: 2</u>

Planned

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Support AND/OR/NOT for labels in rules

▼ Conditions

Condition type .... Explicit conditions ▼

Folder .... Main ▼

Host tags .... [▼] Add tag condition

Host labels .... Label ─ [is ▼] cmk/os_family:linux × ×
                                                                  [or ▼] cmk/os_family:solaris ×
                                                                  [or ▼] (Select label)

                                                        and ▼ [is not ▼] cmk/site:stable × ×
                                                                [not ▼] (Select label)

Explicit hosts .... ☐

Checkmk Conference

Rethink handling of labels

More labels!

65 votes

Add automatic Label depending on operating system (and distribution)

Add a automatic Label depending on Linux Dsitribution, so plugins like YUM or APT can be selektiv installed based on Distribution (Agentbakery) lnxdistribution: ...

Suggested by: **mike** (04 May, '22) • Upvoted: 17 May • Comments: 16

Planned

e.g. family, full name, kernel, short name, platform, type, version

64 votes

Add label cmk/customer:<customerID>"

There are cases where a rule should only apply to hosts/services of specific sites or/and specific customers. Would be nice the have the Site / Customer as a ...

Suggested by: **Lars Sörensen** (06 May, '22) • Upvoted: 06 Jun • Comments: 10

Planned

Checkmk Conference

Folders need some love...

53 votes

Add option to have Setup folders listed in a table instead of the default "big icon" view

A table view would - subjectively - be easier to read with many folders than the current implementation using icons. Currently, you basically have to use the ...

Suggested by: **Thierry T.** (04 May, '22) • Upvoted: 24 May • Comments: 7

`Planned`

22 votes

Setup folders: sort case insensitive

The Setup folders are currently sorted case-sensitive. This results in folders starting with lowercase letters being sorted after folders starting with uppercase ...

Suggested by: **Thierry T.** (04 May, '22) • Upvoted: 01 Mar • Comments: 4

`Planned` `#Usability`

6 votes

Filter on folders should work

A filter on folders should also work so if there are many folders it is possible to filter/search for them.

Suggested by: **Mathias** (03 Nov, '22) • Upvoted: 24 Jan • Comments: 5

`Planned`

Existing visualization suits a few folders

Other highly voted features

91
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

Transferred (30 May, '22) • Upvoted: 2 days ago • Comments: 10

Planned #Notifications

74
votes

Add agent updater registration role

Add a minimal role for registration users for the automatic agent updater.

Suggested by: **Dennis Ehmer** (27 Apr, '22) • Upvoted: 28 Apr • Comments: 4

Planned

53
votes

Show user currently activating changes

In case multiple users are actively working in the setup of Checkmk, it might happen, that an activation is not possible, because another activation is currently work ...

Transferred (02 May, '22) • Upvoted: today • Comments: 3

Planned

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Add rule: Maximum number of check attempts for

Setup > Services > Service monitoring rules > Maximum number of check atte

Rule   Related   Display   Help

The maximum number of failed checks until a service problem state will be considered as <u>hard</u>. Only hard state trigger notifications.

▼ **Maximum number of check attempts for service**

1

Notifications 101: Triggering test notifications

X	State	Service	Icons	Summary	Age	Checked	Per
	CRIT	CPU load		Manually set to Critical by cmkadmin	**2.86 s**	2.86 s	
	OK	CPU utilization		Total CPU: 24.02%	2023-06-08 16:44:09	25.9 s	
	OK	Disk IO SUMMARY		Read: 31.9 kB/s, Write: 1.05 MB/s, Latency: 726 microseconds	2023-06-08 16:45:15	25.9 s	31.1
				Used: 68.78% - 159 GiB of 231 GiB, trend per 1 day 0			

linux-server-1

Commands   Host   Services   Add to   Export   Display   Help

Notifications 101: Theory meets real life.

Default: 1x WARN/CRIT for hard state

Fake check result

OK	CRIT
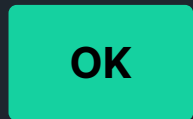
Hard state

Make views more powerful

66
votes

Top 10 hosts dashlet

Allow to define a dashlet, which filters about some host information and shows only the top 10 hits from the results. This allows me as an admin to focus on specific ...

Transferred   (26 Apr, '22) • Upvoted: 06 Jun • Comments: 12

Planned   #Dashboards & Views

Host	CPU load	Memory
[blurred]	40.1	25.72%
[blurred]	18.9	15.45%
[blurred]	15.9	71.22%
[blurred]	12.8	5.58%
[blurred]	8.81	59.79%
[blurred]	6.47	88.0%
[blurred]	4.17	55.27%

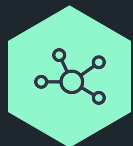# Current limitations of in views and dashlets

Current ranking options of views with limitations, e.g.

- Doesn't work for all kinds of metrics

- No pre-sorting for joined columns possible

Dashlets not sortable in general

→ Also no filtering by metric possible

Technical limitations for determining ranks in distributed monitoring
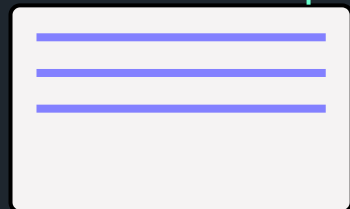
Checkmk UI accesses data like in a distributed DB

Central site

livestatus

Remote site

Remote site
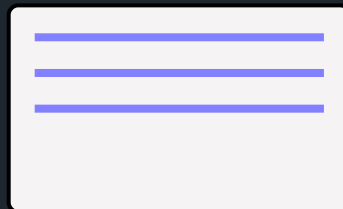
Remote site

Remote site
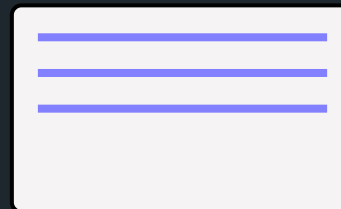
Checkmk
Conference ▬▬▬ A "database row", e.g. a host, service
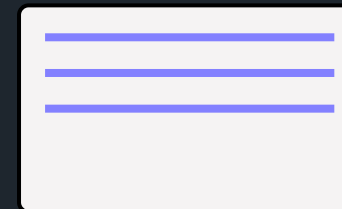
Checkmk is like a distributed database

Central site

Your query produced more than 1000 results.
Repeat query and allow more results.
Note: the shown results are incomplete and do not reflect the sort order.

livestatus

Remote site

x 10,000

Remote site

x 10,000

Remote site

x 10,000

Remote site

x 10,000

A "database row", e.g. a host, service

Visualize network topology (layer 2)

Left panel:

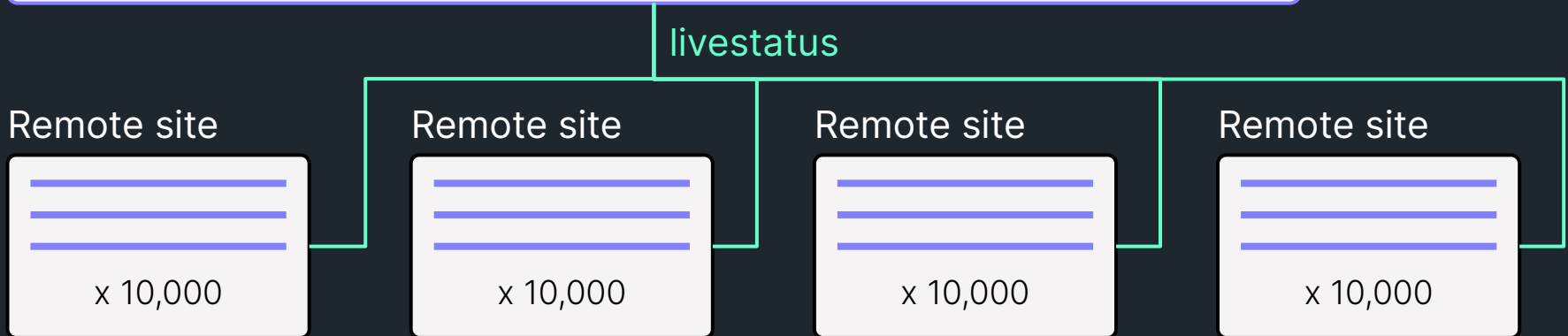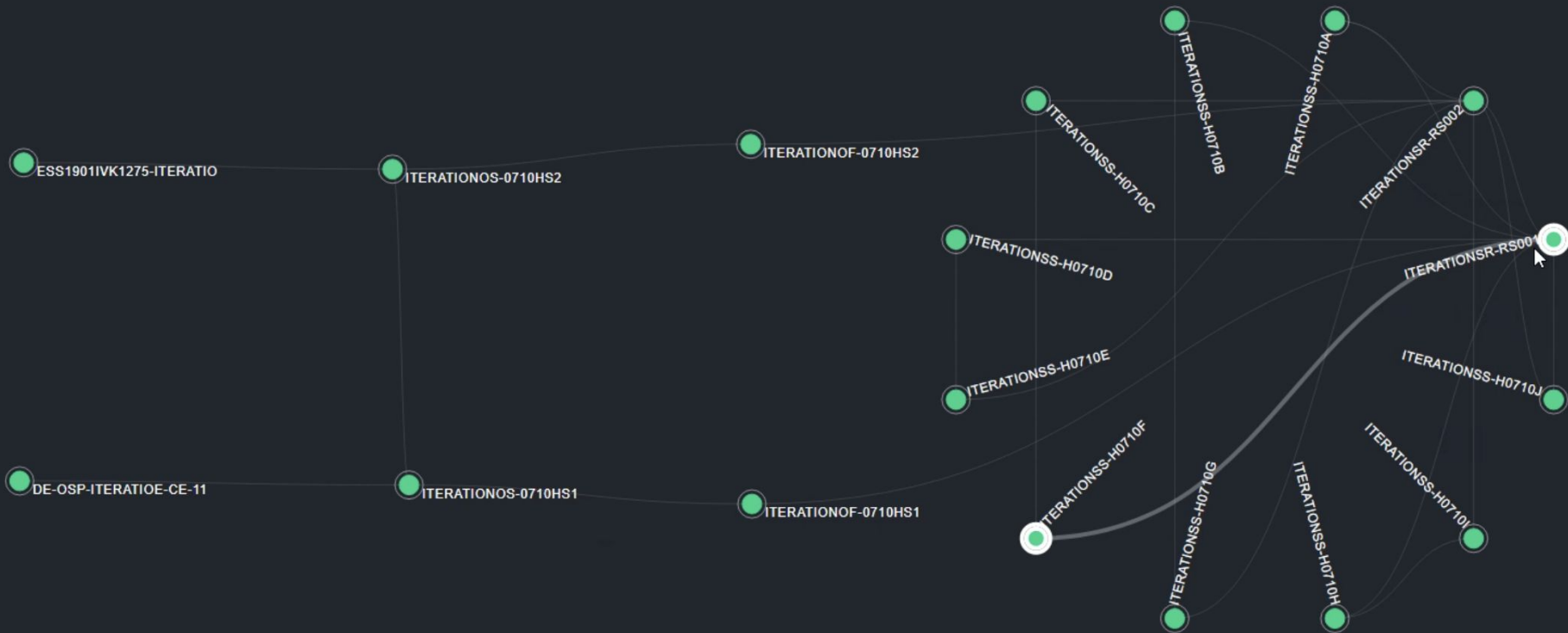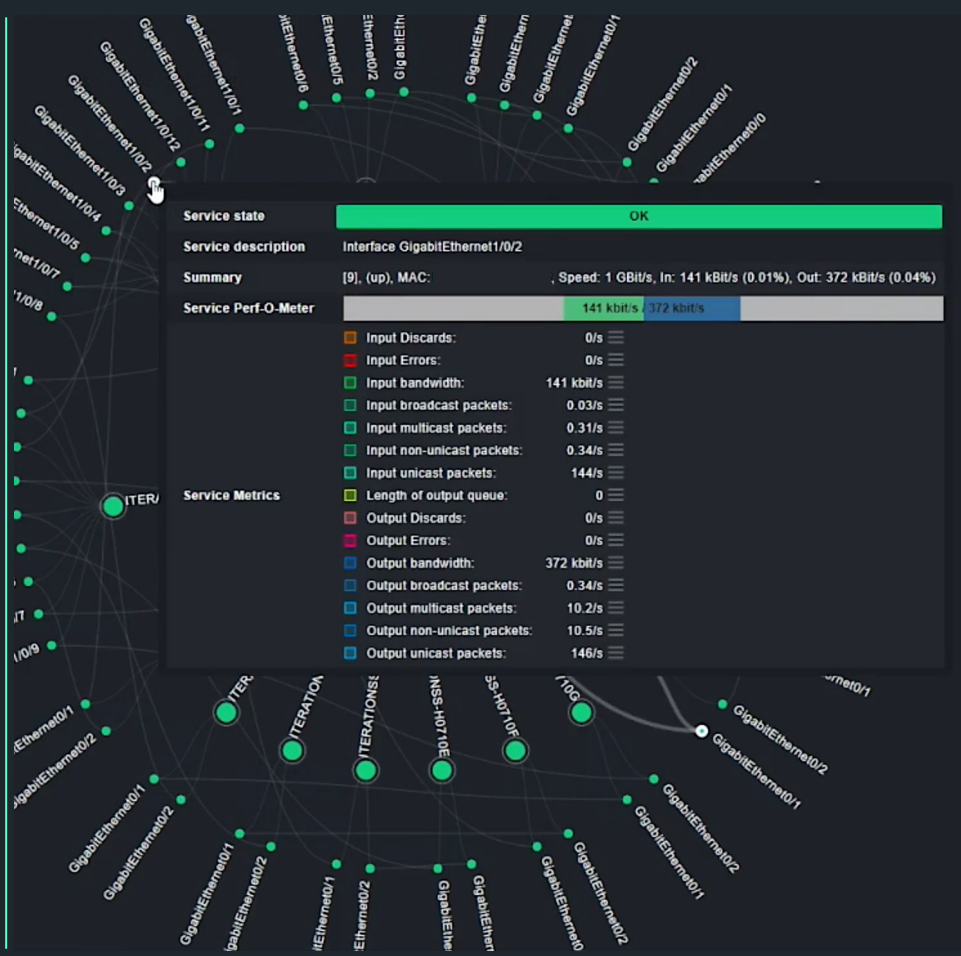| Host state	UP
Hostname	ITERATIONSR-RS001
Host addresses (IPv4/IPv6)	4.25.0.
Host tag: FI Tags / Produkt	LA
Inventory: System ➤ Model Name	WS-C
Inventory: Operating System ➤ Version	16.9
Services colored according to state	Compliance: Name Comparison Complian

Right panel:

Service state	OK
Service description	Interface GigabitEthernet1/0/2
Summary	[9], (up), MAC: , Speed: 1 GBit/s, In: 141 kBit/s (0.01%), Out: 372 kBit/s (0.04%)
Service Perf-O-Meter	141 kbit/s 372 kbit/s

Input Discards:	0/s	
Input Errors:	0/s	
Input bandwidth:	141 kbit/s	
Input broadcast packets:	0.03/s	
Input multicast packets:	0.31/s	
Input non-unicast packets:	0.34/s	
Input unicast packets:	144/s	
Service Metrics Length of output queue:	0	
Output Discards:	0/s	
Output Errors:	0/s	
Output bandwidth:	372 kbit/s	
Output broadcast packets:	0.34/s	
Output multicast packets:	10.2/s	
Output non-unicast packets:	10.5/s	
Output unicast packets:	146/s	

Highly configurable visualization
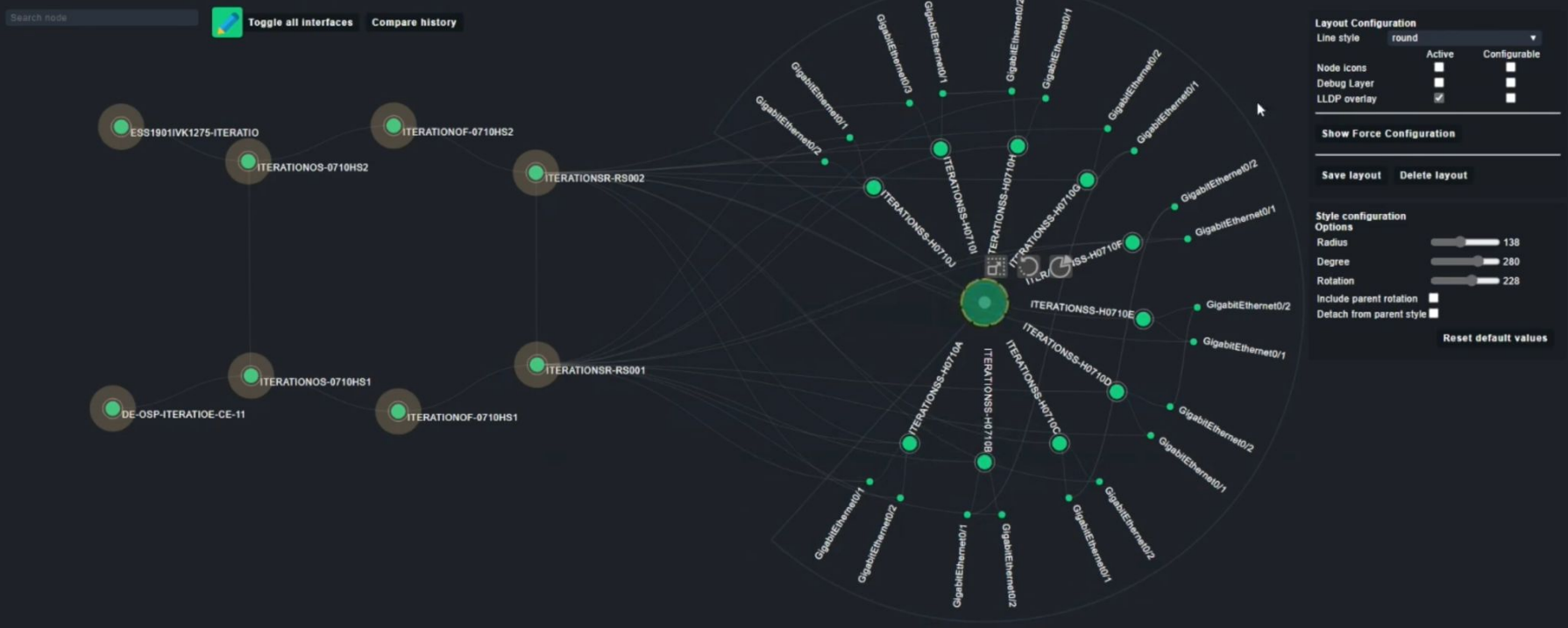
Initial focus for Checkmk: Visualization layer

CDP

LLDP

Other sources

topology.json

Visualization in Checkmk

User responsibility

Checkmk responsibility

Checkmk
Conference
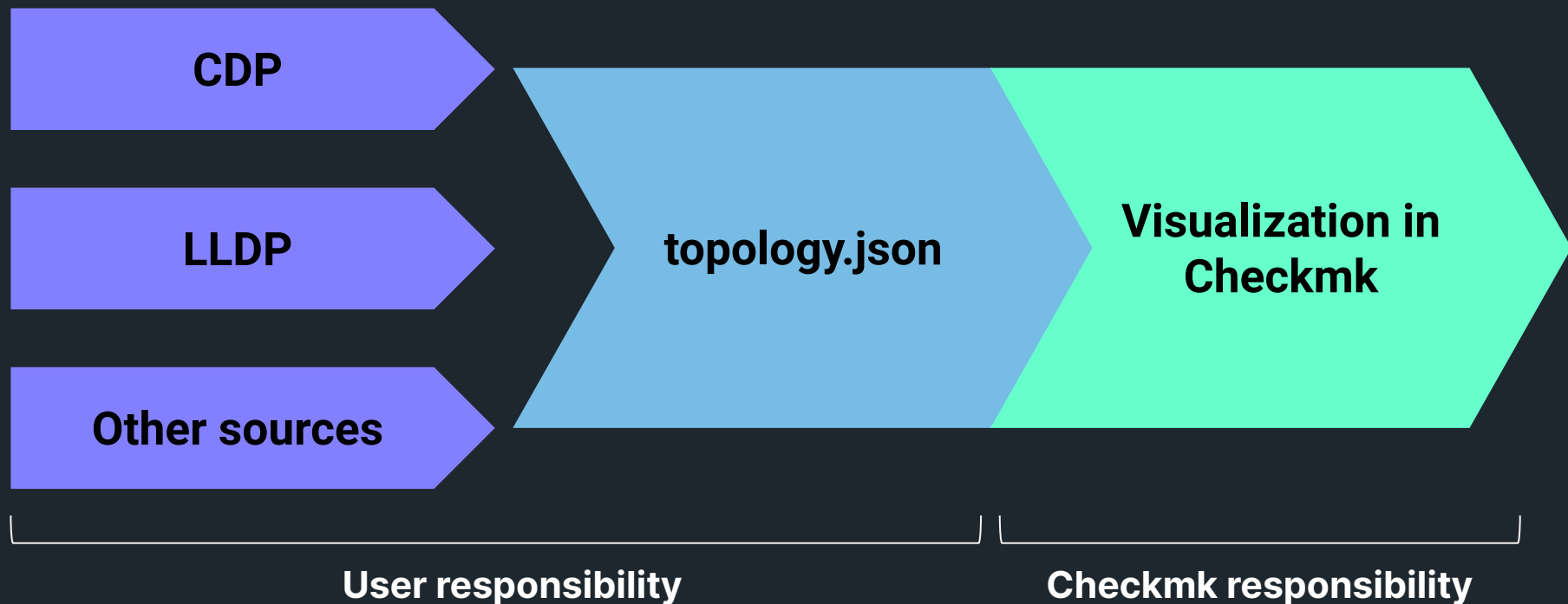
Improve the user experience: **Workflows**

Status quo

Acknowledge problems   ✕

Comment (required)

☒ sticky   ☒ send notification   ☐ persistent comment

Expire acknowledgement after [0] days [0] hours [0] mins

Acknowledge   **Remove acknowledgement**

Checkmk 2.3

Acknowledge problems   ✕

Comment (required)   e.g. ticket ID

Options (Edit defaults)

☐ Expire on   20/06/2023 📅   17:30 🕐
              DD/MM/YYYY   HH:MM

☐ Don't expire on status change, but OK/UP (sticky)

☐ Keep comment after acknowledgment expires (peristent comment)

☒ Notify affected users according to the notification rules (send notifications)

Acknowledge problem   **Cancel**

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Improve the user experience: Dialogs

Checkmk 2.1

Hosts to be monitored
Setup > Hosts > Host monitoring rules > Hosts to be monitored

| Related | Rules | Display | Help |

Delete rule #0 (ID: 10843c55-11ea-4eb2-bfbc-bce65c of folder 'Main'?

Yes   No

Matching: The first matching rule defines the parameter.

Status quo

Hosts to be monitored
Setup > Hosts > Host monitoring rules > Hosts to be monitored   No p

| Rules | Related | Display | Help |

? **Delete rule #0 - Do not monitor hosts with the tag "offline"?**
Folder: Main

Delete   Cancel

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Improve the user experience!

Complex workflows

- Acknowledge problems
- Schedule downtimes

Dialogs

- Confirmations
- Commands

Simple elements, e.g. icon

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More & more super large Checkmk environments...

Automotive	Finance	Retail	Retail

Automotive
- Sites: 13
- Hosts: 17k
- Services: 1.2m
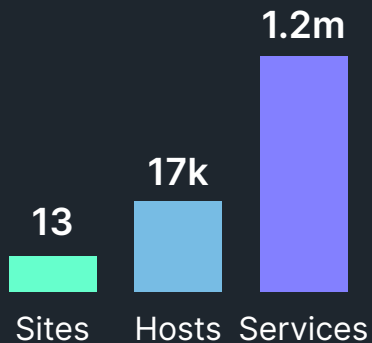
92k services per site

Finance
- Sites: 12
- Hosts: 108k
- Services: 3.7m

308k services per site
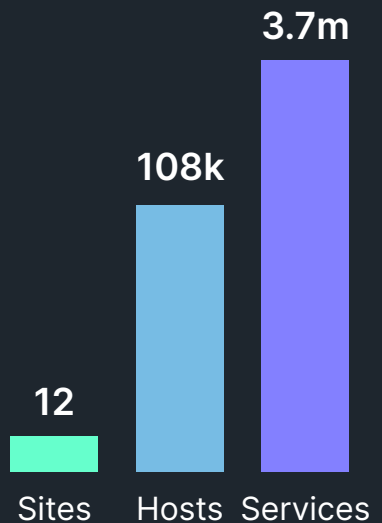
Retail
- Sites: 170
- Hosts: 128k
- Services: 5.8m
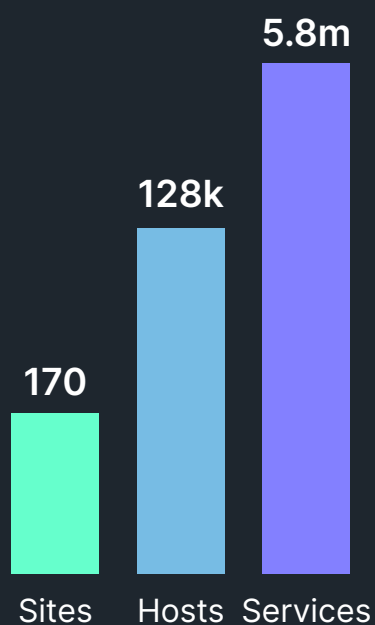
34k services per site

Retail
- Sites: 5k
- Hosts: 50k
- Services: 4.0m
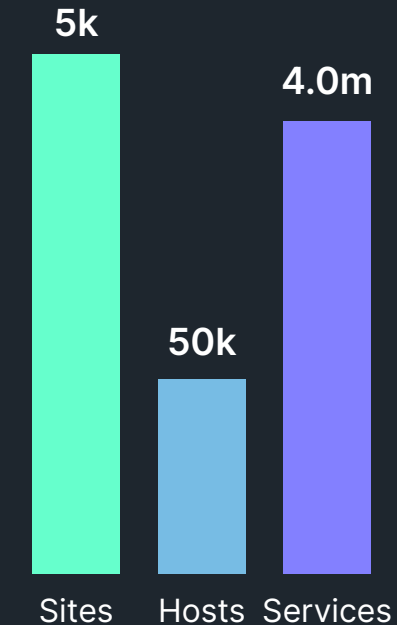
400 services per site

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... deserve special treatment

Improve performance topics common across very large environments, e.g. activate changes, ruleset engine, page rendering

Example

Services of Host docs.checkmk.com
Monitor > Overview > All hosts > docs.checkmk.com > Services of Host

| Commands | Host | Services | Add to | Export | Display | Help |

Add to dashboard
🌐 Single metric dashlets
🌐 Bar chart
🌐 Notification Bar Chart
🌐 Checkmk dashboard
🌐 Agent latency
🌐 Insights
🌐 Problem dashboard
🌐 423324

docs.checkmk.com

| State | Service | Icon |
| OK | Check_MK | |

Imagine with hundreds of custom dashboards / reports

Improvements to current editions

Improve core features

Configuration

Visualization

Workflows / Actions (UX)

Performance

Make updates a breeze

Customer discussions

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How to make updates a breeze?

Updates & extensions (MKPs)

Incompatible changes

Invalid configurations

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Extensions ♥ Updates

Checkmk extensions can be …

- Check plug-ins

- Agent plug-ins

- Inventory plug-ins

- GUI extensions

- Graphs & Perf-O-Meters

- Notification and alert handler scripts

Issues during updates

- For some extensions, there are no developer APIs

- No developer API → internal code restructurings in Checkmk can break an extension

- Solution? Developer APIs

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New developer APIs

In Checkmk 2.0
Introduced new Check API

For Checkmk 2.3

- Metric plugins (incl. Performeter) API
- Rulesets (/rulesets/wato) API
- Special Agent parameterization

---

check_levels(*value, *, levels_upper=None, levels_lower=None, metric_name=None, render_func=None, label=None, boundaries=None, notice_only=False*)

Generic function for checking a value against levels.

Parameters:
- **value** (`float`) – The currently measured value
- **levels_upper** (`Optional` [`tuple` [`float` , `float`]]) – A pair of upper thresholds, ie. warn and crit. If value is larger than these, the service goes to **WARN** or **CRIT**, respecively.
- **levels_lower** (`Optional` [`tuple` [`float` , `float`]]) – A pair of lower thresholds, ie. warn and crit. If value is smaller than these, the service goes to **WARN** or **CRIT**, respecively.
- **metric_name** (`Optional` [`str`]) – The name of the datasource in the RRD that corresponds to this value or None in order not to generate a metric.
- **render_func** (`Optional` [`Callable` [[`float`], `str`]]) – A single argument function to convert the value from float into a human readable string.
- **label** (`Optional` [`str`]) – The label to prepend to the output.
- **boundaries** (`Optional` [`tuple` [`Optional` [`float`], `Optional` [`float`]]]) – Minimum and maximum to add to the metric.
- **notice_only** (`bool`) – Only show up in service output if not OK (otherwise in details). See *notice* keyword of *Result* class.

Return type: `Generator` [`Result` | `Metric` , `None` , `None`]

Example

```
>>> result, metric = check_levels(
...     23.0,
...     levels_upper=(12., 42.),
...     metric_name="temperature",
...     label="Fridge",
...     render_func=lambda v: "%.1f°" % v,
... )
>>> print(result.summary)
Fridge: 23.0° (warn/crit at 12.0°/42.0°)
>>> print(metric)
Metric('temperature', 23.0, levels=(12.0, 42.0))
```

Incompatible changes …

160 / 1524 of 2.2.0 werks incompatible

- Software changes requiring user knowledge or interaction.

- In many cases:
  service rediscovery of affected hosts

- In some cases:
  manual adaptation of configuration

56 open incompatible werks

Checkmk Enterprise Edition
2.1.0p29

Monitor

Customize

Setup

56

Help

🎓 **Learning Checkmk**

Beginner's guide

User manual

Video tutorials

Community forum

❯_ **Developer resources**

Check plugin API introduction

Check plugin API reference

REST API introduction

REST API documentation

REST API interactive GUI

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… often affect only a small number of users

Incompatible werks often affect only specific rulesets

- Many incompatible changes are irrelevant for most users

- Incompatible changes are unaware of your configuration

Goal

Only show incompatible changes relevant to users based on their configuration

Title	kemp_loadmaster_realserver: incorporate virtual services
Class	Bug fix
Compatibility	Incompatible - TODO
Description	The Kemp LoadMaster may provide multiple server states for the same Real Server, each state corresponding to a virtual service. Previously, the check kemp_loadmaster_realserver would

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Even better: Address the root cause(s)

Reduce incompatible changes

- Incompatible werks have many different root causes

- Identify what kind of changes cause most incompatible werks

- Implement mechanisms to reduce them over time

- Quick-wins for Checkmk 2.3

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Validation of configuration and statefiles

- Configuration and runtime data (statefiles) needs to conform with our data model

- However, they are changeable by the user.

- Related errors typically occur only during runtime

Goal for 2.3

During an update, cmk-update-config is executed

- Configuration and statefiles are validated

- Incompatible configuration leads to aborted update

Improvements to current editions

Improve core features

Configuration

Visualization

Workflows / Actions (UX)

Performance

Make updates a breeze

Developer APIs

Incompatible changes

Config validation layer

More monitoring

Pull & paid requests

Plans for extending monitoring coverage

Code contributions

Via pull requests or in close collaboration with contributor

Examples

- Nutanix (Yogibaer75)
- Cisco Meraki / DNA Center (thl-cmk)
- Generic Redfish integration (Yogibaer75)

Commissioned projects

Solves immediate need of a customer.

Example projects

- Enhancement to existing check
- New checks

Strategic development

Fits our strategic priorities

Examples

- New cloud monitoring checks (AWS & Azure)
- Improve existing cloud monitoring (AWS & Azure)
- SuSE Rancher
- Podman

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Bring the Cloud Edition features to the CME

Managed Services Edition (CME)

Specially designed for IT service providers

Monitor your customers' IT infrastructures

Multi-customer management & dashboards

Data security compliance with data segregation

Intelligent alarms routing directly to service providers or customers

Available as white label product

+

Cloud Edition

Cloud & hybrid monitoring

Push and pull agents

Auto-register any workload

Monitor cloud-native workloads

...

Improvements to current editions

Improve core features

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Performance

Make updates a breeze

Developer APIs

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Config validation layer

More monitoring

Feature debt

Time

Feature debt we will tackle with Checkmk 2.3

NetApp
Introduced REST API

Microsoft
Getting rid of basic auth

Windows
VBS with limited future

check_http
Replaced by check_curl

Kubernetes
~3 new releases per year

Appliance
Debian 10 LTS ends 06/24

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Improvements to current editions

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Feature debt

Platform improvements

Internal

Invest into the future

Cleaner software architecture

Maintainability e.g. new UI framework

Quality

Security

9
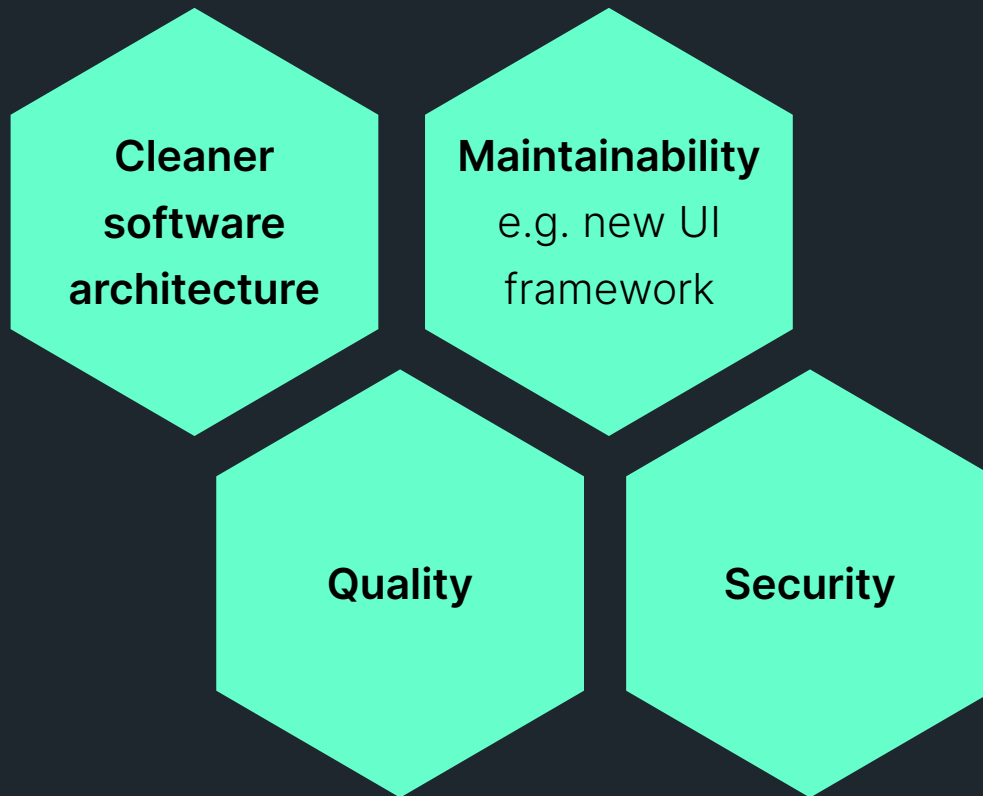
01 Behind the scenes: Roadmap

02 **Checkmk 2.3**

⬡ Improvements to current editions

⬢ **New products**

03 Outlook

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Strategic initiatives: New products

Applications

Infrastructure

Hybrid IT Monitoring
(Self deployed)
(Software-as-a-Service)

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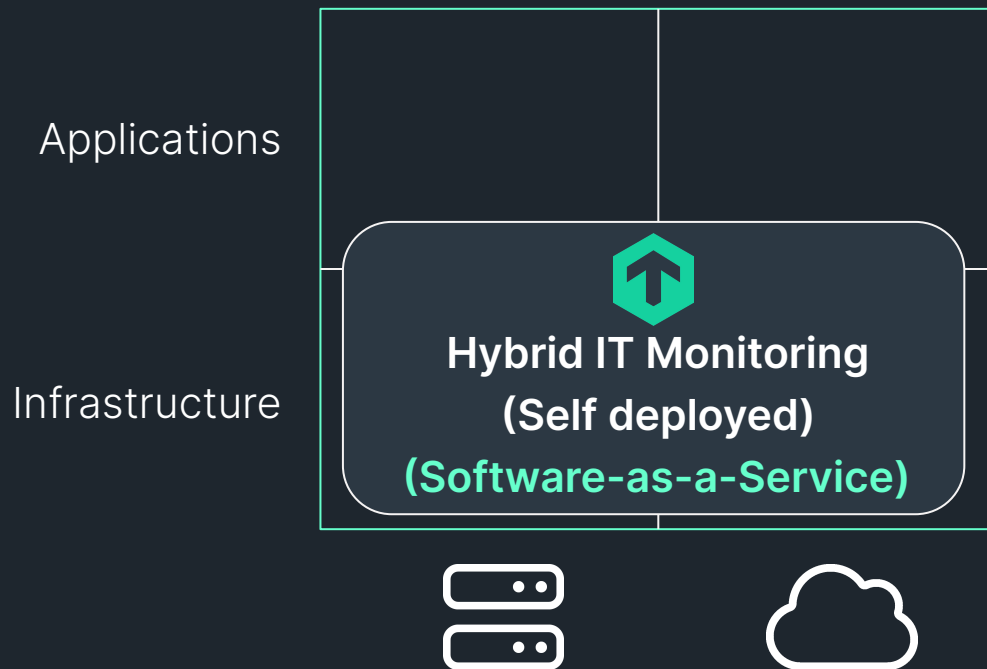
The Checkmk Self-Deployed Journey*


```
Person → Request infrastructure (e.g. server) → Download CMK (& transfer to server) → Install Checkmk
```

Monitor your IT / Configure your monitoring

- Update / scale server
- Update CMK

- Availability
- Security
- Backup
- Performance

Checkmk Conference

Note: This is of course a simplified user journey
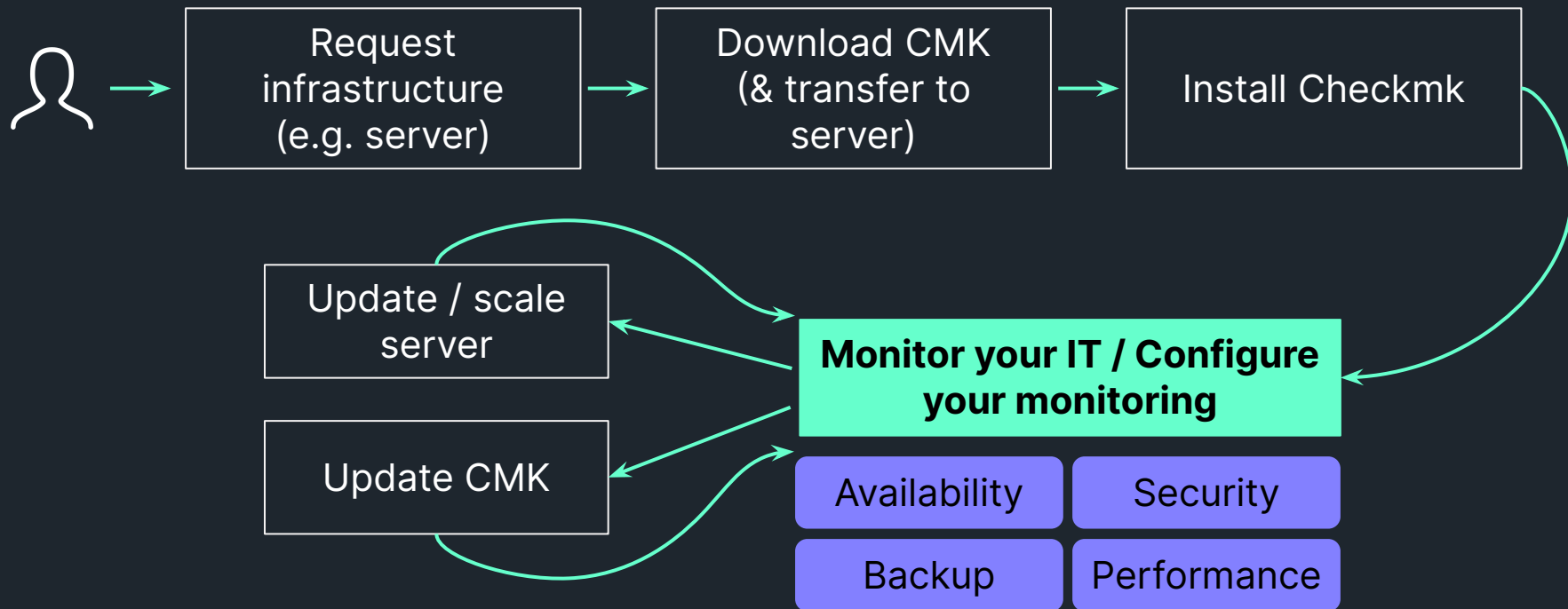
The Checkmk Software-as-a-Service Journey*

Get Checkmk account

Monitor your IT / Configure your monitoring

⚠️ No managed monitoring service by Checkmk ⚠️

Not just a new product – make Checkmk better

Monitor the monitoring

Improve our own monitoring (e.g. OMD disk usage checks)

Improve monitoring of technologies at scale

Improve Checkmk operations for everyone

A SaaS product requires everything to be automated

Sign up for the SaaS product beta...

Scan the QR-Code or visit
https://checkmk.io/saas-beta
and complete the short form.

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Strategic initiatives: New products

Applications

Synthetic Monitoring

Infrastructure

**Hybrid IT Monitoring
(Self deployed)
(Software-as-a-Service)**
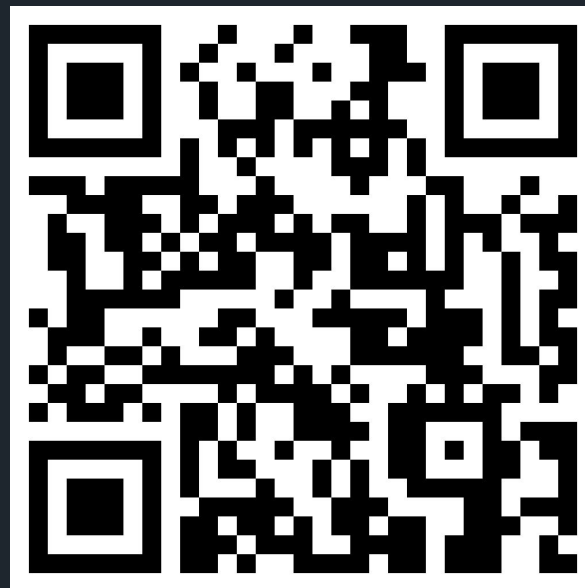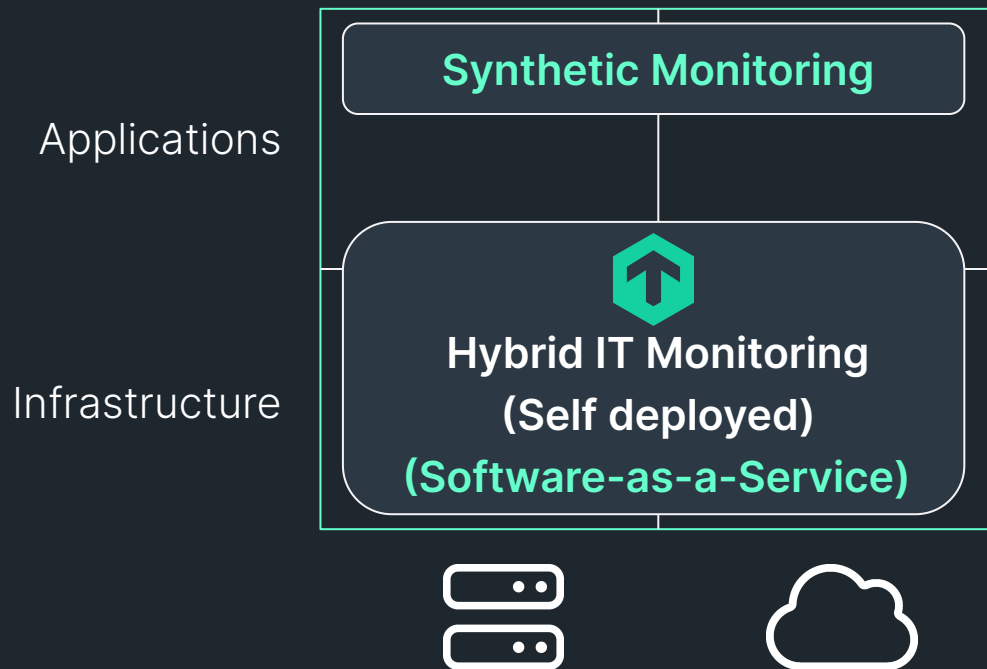
"Synthetic" monitoring

"Synthetically" mimic interactions of users with target systems to verify applications work as expected
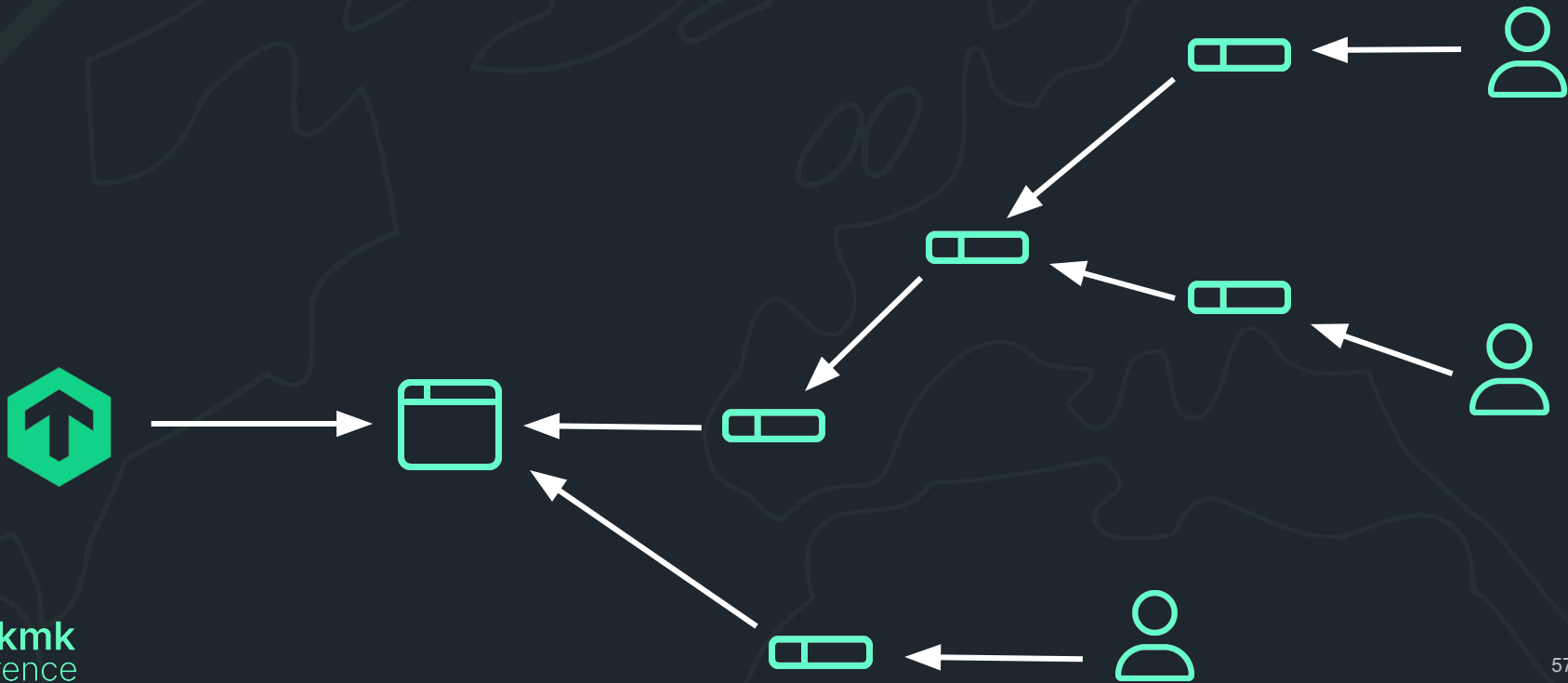
Synthetic monitoring roadmap

Test development

Test node management

Test execution / scheduling

Insights

Checkmk Synthetic Monitoring
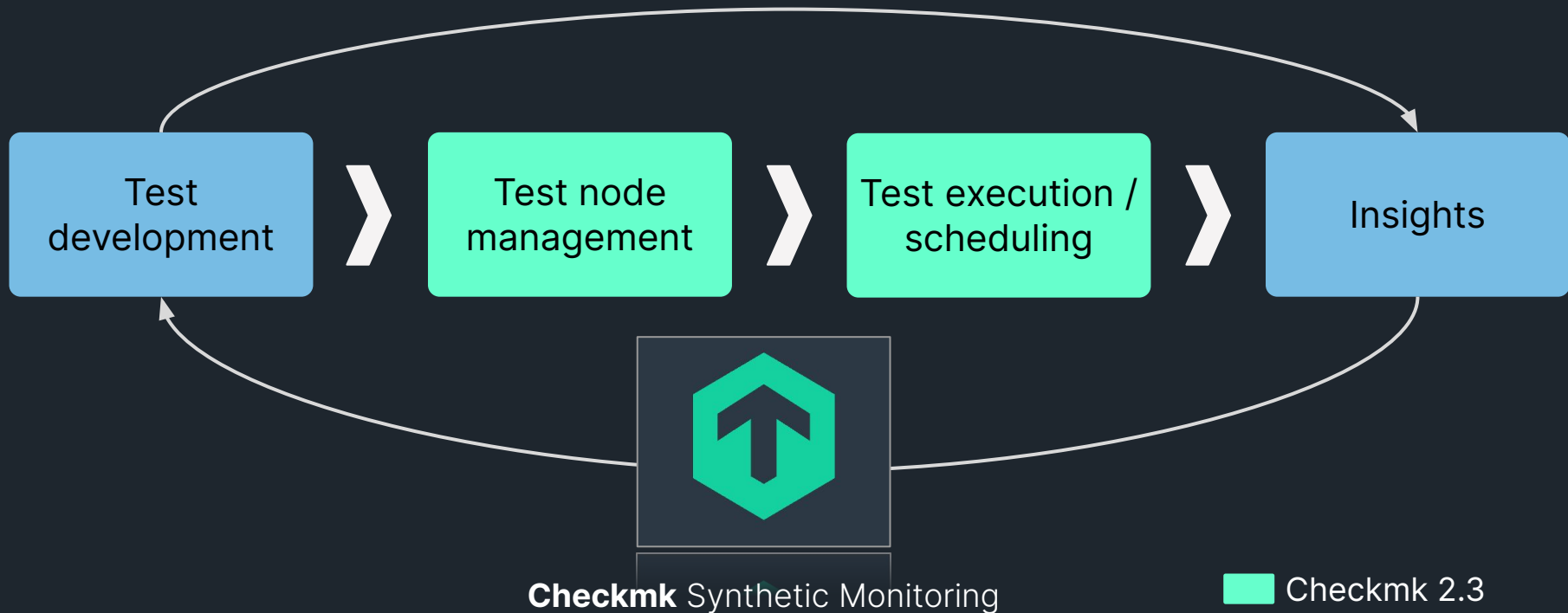
Checkmk 2.3

After Checkmk 2.3

The plan for Checkmk 2.3

Improve core features

Make updates a breeze

SaaS Product
(2024)

More monitoring

Feature debt

Platform improvements

Synthetic Monitoring

Focus of the Checkmk 2.3 release

9

| Improve core features | Make updates a breeze | More monitoring | Feature debt | Platform improve-ments | Synthetic Monitoring | SaaS Product |

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Make the product better   Expand the product   Driven by existing users

60

9
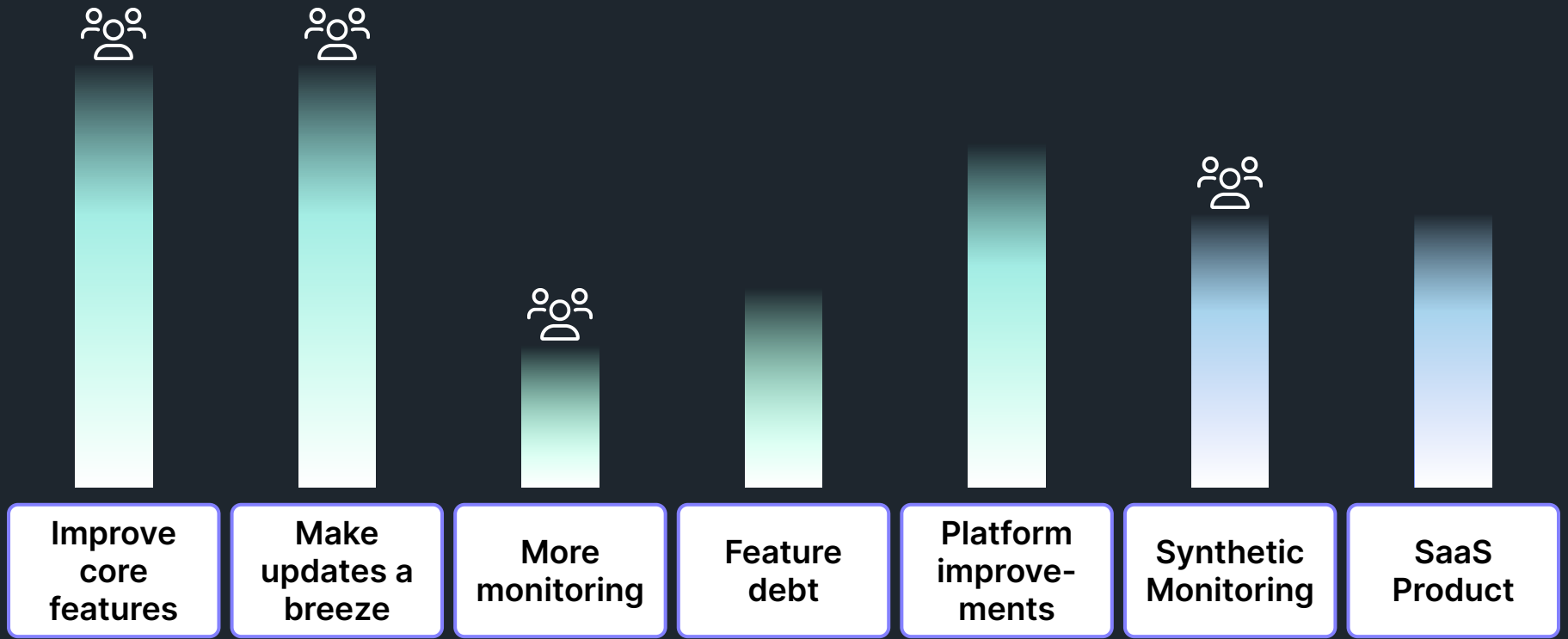
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Feature Portal

features.checkmk.com

750+

suggestions

+1 per day

45

done / implemented

20

planned

Purpose of the feature portal

Transparency for users, and us

Track all feature requests publicly

Understand relevance of features

Relevant for everyone? Discussions.

Input source for roadmap

Complement roadmap with user input. In 2.3 now possible.

Gaming the system...

- One of the top 15 most-voted features with >80 votes

- 30% votes from one location (a small town)

- On-top 20% further votes from two companies

- 80% anonymous votes – strongly deviates from average across portal (50%)

Feedback / learnings after one year

Fairness

- Low hurdle for high involvement vs. gaming the system

- Weighting of paying vs. non-paying users

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Share your expectations with us today

New feedback wall at the back of the hall!

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Roadmap
Communication

- More detailed roadmap on conference and website

- Split by release

  - Detailed for upcoming release

  - Outlook for future releases

- Regular updates on content and status

- 2.3 update coming soon

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Thank you!

Vielen Dank!

checkmk